

# CIO

# WebBusiness

Section Two • August 1, 1998  
140 Pages In Two Sections

## ALSO INSIDE

Is Online Bidding  
A Great New  
Way To Squeeze  
Suppliers?

Page 50

How an  
extranet  
tracks satellite  
business for  
a growing orbit  
of global  
customers

Page 30

IntelSat's  
CIO and VP  
Ramu  
Potarazu

# Bird Watching



# CIO

How To

W

**ALSO INSIDE**

**Is Online Bidding  
A Great New  
Way To Squeeze  
Suppliers?**

Page 50

## FYI

**FROM:** \_\_\_\_\_

Attached is a copy of **CIO Web Business**.  
The articles take a cross-functional look  
at leveraging the Web to add enterprise  
value. Thought you might be interested...

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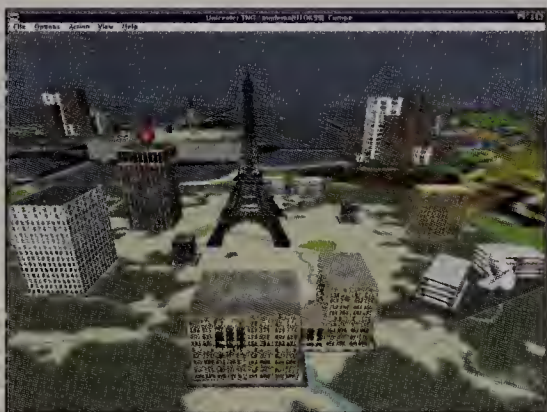
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# WebBusiness

VOL. 11 • NO. 20 • AUGUST 1, 1998 • 140 PAGES IN 2 SECTIONS  
SECTION 2

## FEATURES

### 30 Spatial Relations

**COVER STORY: GLOBAL EXTRANET** For IntelSat, running a fleet of 20 high-powered satellites was the easy part. The challenge? Getting closer to customers around the globe. Today, the Web is making it happen.

*By Sari Kalin*

### 42 He Says, She Says

**INTRANET INTROSPECTIVE** Two companies in the same business build similar intranets but govern them differently. Here's why. *By Ruth Greenberg*

### 50 How Bazaar

**PURCHASING STRATEGIES** Industrial buyers in search of bargains are finding that an online bidding model can send prices plummeting. And sellers like it, too—sort of.

*By Art Jahnke*

on the cover

The IntelSat extranet is  
a secure route to customer  
satisfaction.



IntelSat VP  
and CIO  
Ramu Potarazu

Cover photo by  
Katherine Lambert



42



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## COLUMNS

### 20 Staying in Touch

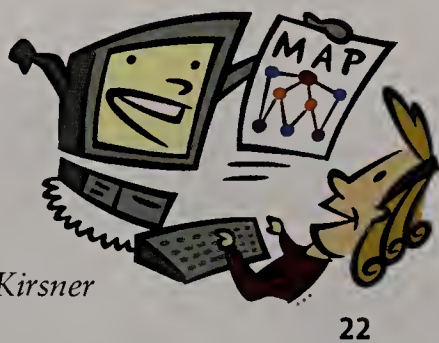
**NETREPRENEURS** By bringing contact management to the Web, PlanetAll banks its future on keeping users connected.

*By Polly Schneider*

### 22 Must-Haves

**THE MAIN ATTRACTION**

Is your Web site missing any of these 12 essentials? *By Scott Kirsner*



22

### 26 Spyer Beware

**GRAY MATTERS** Not knowing the legal limits of competitive intelligence has always been risky. The Web has made ignorance more risky than ever. *By Leonard M. Fuld*

### 58 Tune-Up Time

**CUSTOMER INTERFACE** You know when your server is serving pages, but do you know if your Web site is serving the company? If not, it's time to find out. *By Jim Sterne*

### 62 Just the (Digital) Fax

**POWER SOURCE** Contrary to conventional wisdom, e-mail didn't kill the fax. In fact, companies use digital technologies to support and enhance their faxing capabilities. *By Fred Hapgood*

## DEPARTMENTS

### 6 Home Page

### 8 In My Opinion

### 10 Threads

Crime Show • The Price Is Wrong • Brain of the Outfit • Click, Click, Goose • A Match Made in Heaven • Off the CyberShelf

### 70 Index



26



## Inside Section 1 Special Report: Vendor Relationships

**OVERVIEW** Dealing with vendors is all about relationships and knowing when to say goodbye.

**THE DATING GAME** Twenty things to say to every suitor.

**TYING THE KNOT** Choosing the right vendor isn't enough. To get the most for your money, you must commit, communicate and show you care.

**PARTING WAYS** What can you do when you know it's over?

**THINK TANK** Anticipating a move to Boston, Tom Davenport writes his version of Mike Barnicle's *Boston Globe* column.

**YEAR 2000 CHALLENGE** Seasoned crisis manager John Koskinen faces his biggest challenge yet: preparing the government for Y2K.

**EMERGING TECHNOLOGY** Hackers may probe your network defenses, but detection systems can help find them.

**SHOP TALK** General Motors Locomotive Group's Dana Deasy on multivendor outsourcing.





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# A Ned Ludd Moment

**T**RAVELING FROM BOSTON TO CALIFORNIA RECENTLY, I HAD A MODERN Ned Ludd moment: A full-blown computer outage crippled the airline's reservation system (the airline will remain unnamed as this could happen to any electronically dependent major carrier). I had yet to purchase my tickets. The agent first said she could not issue tickets until the system came back up. But lengthening lines of frustrated travelers led to improvisation.

The tools of an earlier generation were called on: ballpoint pen upon floppy carbon-copy forms. Fortunately, I was at the station of a senior agent who recalled the old way of doing business. Unprepared for this snafu, I lacked vital data about my flight numbers. (Who bothers to know these details anymore? We presume they are "in the system.") The ticket agent turned grumpy. But once I reminded her that I was not responsible for the outage, she calmed down and began writing (she wore a wrist brace, the Velcro badge of computer-induced repetitive stress injury). The old method of issuing tickets was slow. Though the tickets got writ-

ten, seat assignments were outside the agent's domain. For that we had to go to the gate, where a chaotic scene persisted through boarding.

Such stories are presumed to be a dime a dozen: Technology fails, inconveniencing masses of people, who become its victims. These events warm the (presumably peat-fired) hearts of modern Luddites (talk about oxymorons!). *IT interruptus* offers a fresh occasion for both ruefulness and rejoicing among naysayers. In accepting change, goes the Luddite line, culture relinquishes its now de-commissioned knowledge base and values, falling prey to dangerous reliances and vulnerabilities.

But I was struck by how everyone adapted. We were ticketed; we got on board (the gate agents had backup technology: a punch-card aircraft seating diagram). Yes, the plane left a few minutes late. But it wasn't a debacle.

I write about this now because, like other

CIO writers and editors, I have thought a lot about the looming year 2000 deadline. We are dopes if we are not ready to confront multiple large failures of technology, beginning even before the century rolls over. This is what life will be like for many of us: trying, sometimes on short notice, to remember the operating procedures of an earlier time; making the best of bad situations; coping; improvising; summoning grace under pressure. For some it will mean looking for work, and for others spending way too much time with lawyers.

If you think all the Y2K problems will be solved, think again. In your business life, prepare your enterprise to absorb some wondrous shocks. (Are your increasingly business-critical Web applications factored into disaster-recovery planning?) In your personal life, rewire your expectations for impromptu anachronisms.

It's gonna get hairy. But I've seen a slice of the future, and I expect we'll all get through it.



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PHOTO BY JERRY MARGOLYCH



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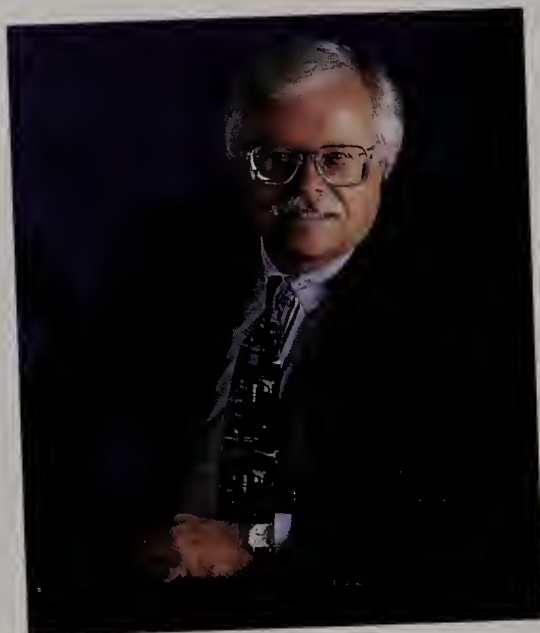
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# Who's Courting Your Customers?

**W**HERE HAVE ALL YOUR CUSTOMERS GONE? THE WEB HAS TAKEN them, one by one. This statement isn't quite true—yet. The Web enables others, using the new technology, to take your best customers without your knowing they're gone until it's too late.

Think this can't happen to your organization? Look at my industry, magazine publishing, as an example. Advertising, not newsstand sales or subscriptions, is our main source of revenue. Three primary advertising revenue sources for many publications are auto ads, recruitment ads and real estate list-



ings. Today, three Web sites, edmunds.com, the monsterboard.com and realtor.com, have become primary destinations for hundreds of thousands, potentially millions of people who used to rely on the printed page.

Your customers can use these sites and others to search easily for the products and services they seek. Like the mythological sirens, the Web is a seductive multimedia platform with movies and sound. A two-way medium, it will learn who these users are and what interests them. It can suggest items of interest without users having to search for them. That's something neither *Boston Magazine*, *The Boston Globe* nor *New York* magazine can do to the same extent with the same immediacy.

Some in our industry think time is on their side, that it will be years before these sites can achieve awareness broad enough to threaten their revenues and profits. But right now by typing "autos," "careers" or "real estate" consumers get hundreds of choices of places to go for the desired information. This shift is like the situation that faced workers when factory automation became the rule of the day.

The Web will affect all industries, all companies large and small. We are in a brave new world, the world of the Internet. We must adapt our organizations to this technology so that we can survive and prosper in the 21st century. There will be a shift in organizational power and control. Your survival could well depend on your ability to embrace the Information Age and enhance your products and services so they can take advantage of the Web.

The question CIOs and line of business executives should ask is, Will my enterprise survive if nontraditional, off-the-radar-screen competitors begin chipping away at my customers?

In my opinion, it's best to be prepared. What's your opinion? As always I appreciate your thoughts and comments.

*Joseph L. Levy*

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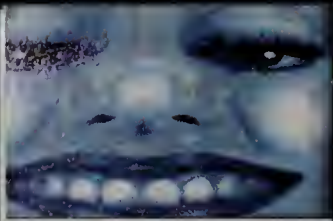
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# THREADS

## Crime Show

**C**RIMINALS BEWARE. The state of Texas recently launched a Web site that offers public access to a database of more than 3 million criminal records, including criminal convictions and sex offender registrations. Users can register at the site, [records.txdps.state.tx.us](http://records.txdps.state.tx.us), establish an account and buy "log-in credits" with a credit card or check; the state then debits the user's account \$3.15 for every inquiry. Web-shy customers can also request such information through a written letter at a cost of \$10 per inquiry.

The data is gleaned from the Texas Department of Public Safety's Computerized Criminal History database. The department developed the site in response to a bill passed by the state legislature last session. Prior to that, Texas criminal records were open to the public, but there was no publicly accessible way to search through all of the records at once; anyone

who wanted to find such records had to travel to each courthouse, says Sherri Deatherage Green, spokesperson for the Department of Public Safety in Austin.

In the first month of its rollout, the site signed up 4,100 customers and answered about 12,000 inquiries, says Sanjay Nasta, president of MicroAssist Inc., the Austin-based company that developed the site. Most of the customers are large employers, but day-care centers, investigative agencies and some private citizens also use the site to check criminal histories. And a surprising number of users are taking advantage of the opportunity to look up their own criminal records to make sure they are accurate, Nasta says.

The Department of Public Safety cautions that an alphanumeric database search alone is not enough to guarantee that someone does indeed have a criminal record. "The only way to absolutely link someone to a criminal history is through their fingerprints," says Green. "There could be five John Johnsons born on the same date in Texas."

—Sari Kalin

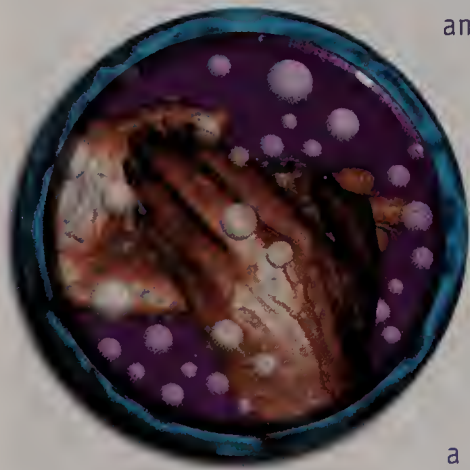
## The Price Is Wrong

Information technology often measures the efficiency of a business practice, but at FreeMarkets OnLine Inc., a Pittsburgh-based outsourcer of purchasing (see "How Bazaar," Page 50) that uses Web technology to put requests for goods out to several suppliers for bid, it may have revealed a practice that is so efficient it is a federal crime. FreeMarkets cofounder and Executive Vice President Sam Kinney says that the bids he has seen in some of his company's

competitive bidding events so strongly suggest collusion among would-be sellers that he is thinking of calling in the Feds. Company cofounder and President Glen Meakem says the most suspicious bids have come from companies that have been fined tens of millions of dollars for collusive activities within the last three years. "We have seen these companies behave collusively after they paid the millions of dollars in fines," says Meakem. "With the data we have, it would be very difficult to prove in a court of law, but from a businessperson's point of view, not a lawyer's point of view, there have been times in very, very consolidated supply industries where we've seen this behavior. We were very certain, along with our buying client, that [collusion] was exactly what was going on."

Says Kinney: "Buyers' jaws dropped."

—Art Jahnke





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# THE PINK SLIP AND

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# THE DOOR HIT IT ON THE WAY OUT

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## Brain of the Outfit

**I**NTELLIGENESIS CORP. ([www.intelligenesis.net](http://www.intelligenesis.net)) founder Ben Goertzel has followed one of the more interesting paths to forming an Internet software company. With a PhD in mathematics, Goertzel pursued an academic career that led him to university teaching positions in math as well as in computer science and psychology. In the course of his research, Goertzel developed a keen interest in the human thought process, and with the advent of the Internet—and more recently of corporate intranets—Goertzel was struck by the similarity between how the human mind stores and processes information and how corporate intranets could perform the same functions. As a result, Goertzel founded IntelliGenesis in New York City and worked to develop something called WebMind, a Java-based software product described as “the human thought process, imposed on data,” slated for release in January 1999.

**WB:** How are the Internet and intranets similar to the human mind?



**100 Billion Neurons:** IntelliGenesis founder Ben Goertzel is exploring similarities in the ways information is processed by the human mind and the corporate intranet.

**Goertzel:** The brain itself contains 100 billion neurons. There are also subset modules, which are tightly interconnected and contain 10,000 to 100,000 neurons each. Think of computers like a brain cell and make a comparison to the Internet where everything is connected but is in a tangle. The power and processing capabilities come from the internally interconnected subsets of modules, which I compare to corporate intranets. Intelligent intranets interconnected and communicating with each other is where the knowledge management happens.

**WB:** How did you make the jump from an academic career to start a Web software company?

**Goertzel:** My current interests in the human thought process and the Internet came out of my research work as an academic. There are certain abstract mathematical equations that capture the essence of intelligent thought and explain how intelligent structures emerge from informa-

tion-rich, complex systems. Take an environment with information richness and processing power, and intelligent dynamics can emerge from it. That's what corporate intranets should be all about.

**WB:** Have corporations gotten the most out of their intranets yet?

**Goertzel:** Right now, most corporate intranets feature a bunch of information sitting in databases, document archives and file directories. Companies use data mining tools to analyze the information or text search terms to access static data storage. In the human mind, memory is inherently integrated with processing. That allows for intelligence. Corporate intranets are programmed for either storage or a communications channel. They are not programmed to generate their own knowledge and answer questions based on the knowledge they generate. The key to doing that is establishing a long-term memory—of being able to integrate textual and numerical information, combine anecdotal information and draw conclusions based on context.

—Megan Santosus



**Bank Shot** Number of people in the United States who do some form of online banking: **5 million**  
Number of people in the United States who will do some form of online banking by 2001: **22 million**

SOURCE: ONLINE BANKING REPORT



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## Click, Click, Goose

**S**URFING FOR A DISTINCTIVE GIFT? A new Web site will let you "buy" goats, geese or an arkful of animals online. Heifer Project International, the nonprofit group that launched the site in April ([www.heifer.org](http://www.heifer.org)), sends the farm animals to poor families worldwide, teaching them how to raise and care for them. The Little Rock, Ark.-based charity, whose budget this year is \$18 million, already mails a printed

Christmas catalog to millions of people every year, says Tom Peterson, the group's director of communications; donors can make gifts in someone's name and then send a special Heifer Project card to let them know about it.

The Web site's gift catalog is just starting to attract donors, Peterson says, although he does not have sales figures available. In the future, Peterson is optimistic that a significant chunk of the group's income will flow from the Web site, donated by the same kinds of last-minute shoppers who turn to the Web for flowers and compact discs. And for Heifer Project, cybercharity has its benefits: Every credit card order entered online saves the group the cost of handling a toll-free call. —Sari Kalin



## A Match Made in Heaven

It's a match game with life-and-death stakes: Doctors seek information on the latest cancer drugs and researchers look for volunteers—usually a specific type of patient with a particular form of the disease—to test new treatments.

"The whole thing is paper-based, so people were kind of slipping through the cracks," says Ralph Folz, president of TVisions Inc. ([www.tvisions.com](http://www.tvisions.com)), a Cambridge, Mass.-based Web developer. Overworked oncologists needed to read massive amounts of documentation outlining the criteria for each clinical trial and then fill out piles of paperwork to get patients admitted. Having too few test subjects can postpone trials and delay getting potential treatments to market—an undesirable outcome for both drug companies and patients.

But now, thanks to an extranet that TVisions developed for American Oncology Resources Inc. ([www.aori.com](http://www.aori.com)), a Houston-based physician prac-

tice management company serving more than 300 doctors in 17 states, some of that matching is done online. The American Oncology extranet creates a database of patient profiles and clinical trials. Medical staffers update the database with information about their patients. The extranet then compares that data with the criteria established for each clinical trial (for example, males over 18 with Stage 4 liver cancer and a specific history of previous treatment). If there's a likely match, the system e-mails the physician requesting more details. If the additional information results in an exact match—this patient is a perfect candidate for this drug trial—the doctor then decides whether to recommend the patient's participation.

Folz says the system, which preserves patient confidentiality, searches the whole database every time a new trial is announced.

It's too early to say whether the extranet, which went online in June, has

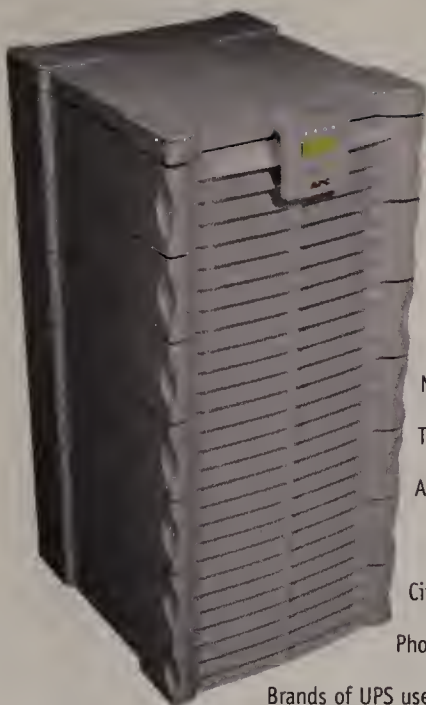
saved lives. But it can't hurt, says Bill McKeon, American Oncology's vice president of marketing: "This system will give more people access to drugs that might help them and will bring new drugs to market more quickly."

—Anne Stuart



ILLUSTRATION BY OCTAVIO DIAZ





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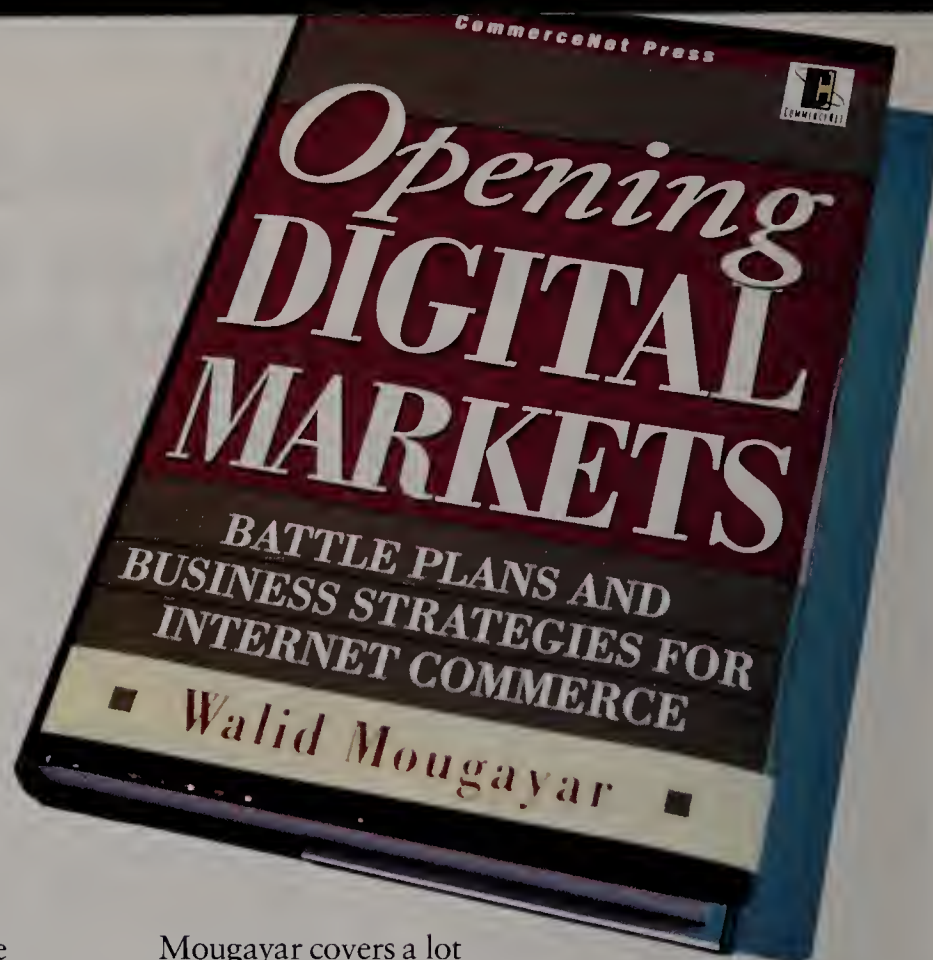
Opening Digital Markets

Walid Mougayar

McGraw-Hill, 1998

\$24.95

**W**ALID MOUGAYAR'S BOOK, *Opening Digital Markets*, begins on an inauspicious note. Jim Manzi, former CEO of now-defunct Nets Inc. (see "The Hole in Nets Inc.," CIO Section 2, Oct. 1, 1997, and available on the Web at [www.cio.com/archive/webbusiness/100197\\_nets.html](http://www.cio.com/archive/webbusiness/100197_nets.html)) is quoted talking about the bastardization of the term "electronic commerce." Since Manzi proved incapable of guiding Nets Inc. to success, his appearance at the head of the first chapter does not bode well for the book's credibility, particularly considering that the book's subtitle *Battle Plans and Business Strategies for Internet Commerce* is emblazoned across the cover. But just as a book should not be judged by its cover, it should not be judged by the pithy quotes of celebrity executives. Reading the approximately 250 pages of *Opening Digital Markets* is a useful exercise, at least for executives who need a broad overview of Internet commerce and its implications for the future of business. And yes, Mougayar eventually acknowledges the failure of Nets Inc. and briefly examines the several forces that doomed the Web-based concern to insolvency.



Mougayar covers a lot of ground but leaves many questions unanswered. For example, in a section discussing online fraud, Mougayar asserts that France—which he says is home to 30 million smart cards with personal identification numbers—suffers from almost no fraud. Why? Is it because of sophisticated encryption technology or a general Gallic inclination for honesty? Mougayar doesn't address the issue, leaving IT execs who are looking for specific technology strategies out of luck.

On the other hand, CIOs would do well to pass along the book to their fellow executives. Mougayar clearly describes the bottom-line business benefits of adopting and executing an Internet commerce strategy.

Numerous charts listing the players and technologies involved in Internet commerce are helpful, though given the rapidly changing landscape of the Internet, the charts may have a limited shelf life. The book's five appendices include a glossary of acronyms, a listing of electronic commerce organizations and the Internet addresses of companies cited throughout the book.

The serious flaw in the book is that Mougayar cites at length what appear to be company press releases touting some product or service. He offers no accompanying analysis or perspective but seems to include the releases simply as evidence that Internet commerce is spreading to the mainstream. The hype is a blemish on the face of an otherwise useful book. —Megan Santosus

### It's the Economy, Stupid

| OLD WAY                                                     | NET WAY                                            |
|-------------------------------------------------------------|----------------------------------------------------|
| Average telephone transaction cost<br><b>\$5.00</b>         | Average Internet transaction cost<br><b>\$0.01</b> |
| Traditional bank transaction cost<br><b>\$1.07</b>          | Same transaction on the Web<br><b>\$0.01</b>       |
| Traditional airline ticket processing cost<br><b>\$8.00</b> | Same transaction on the Web<br><b>\$1.00</b>       |

SOURCE: EMARKETER, (WWW.EMARKETER.COM)

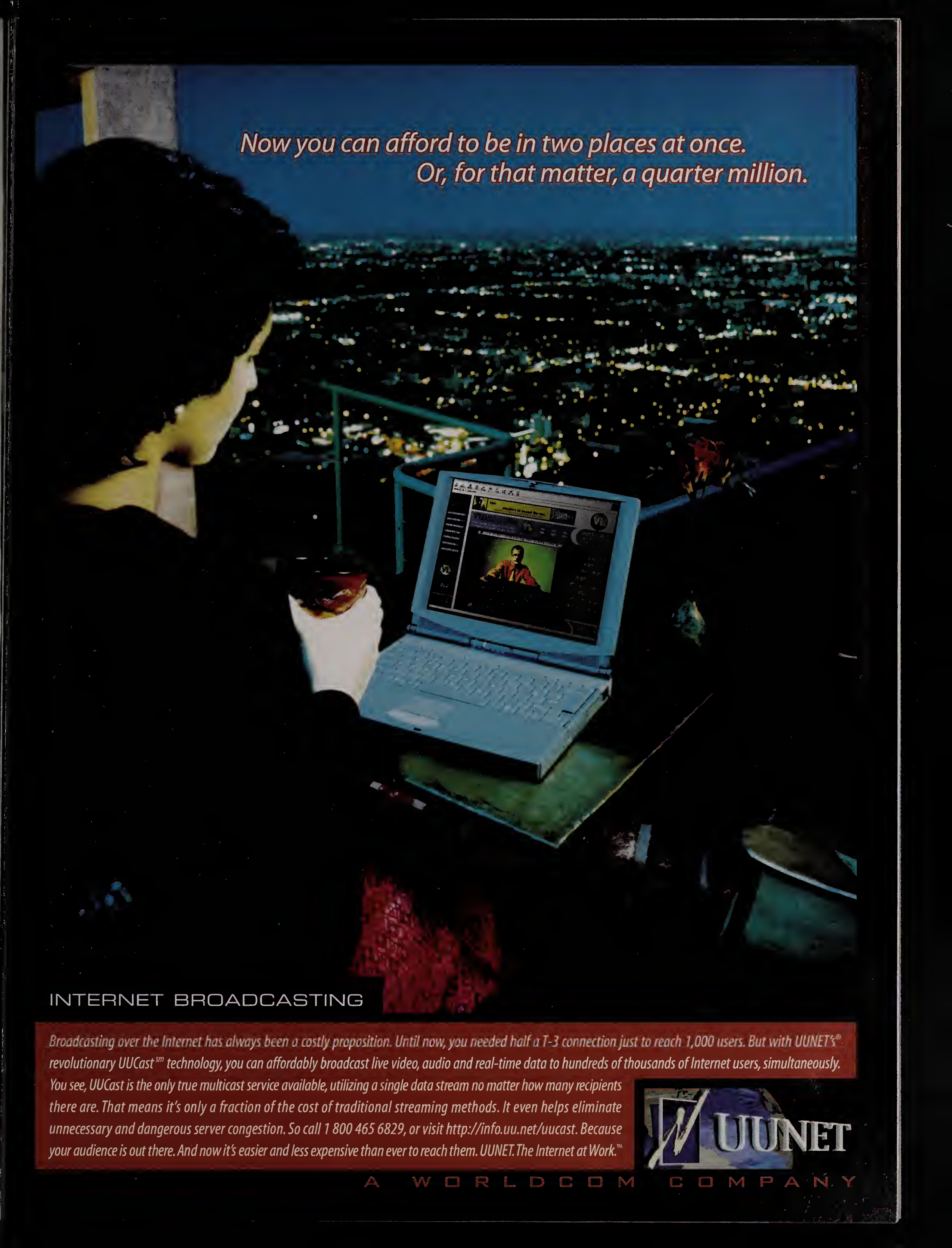
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—U.S. Speaker of the House Newt Gingrich at the SuperComm Trade Show in Atlanta, June 8, 1998, proposing that all schoolbooks be replaced with lessons read via the Internet

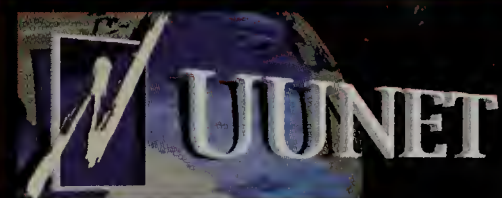




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A WORLD COM COMPANY



## Staying in Touch

*By bringing contact management to the Web, PlanetAll banks its future on keeping users connected*

BY POLLY SCHNEIDER

Y

OU USE MICROSOFT CORP.'S OUTLOOK AT home, Lotus Development Corp.'s Organizer at the office and a handheld PDA on the road to store and manage your key business and personal contacts. That means three different, incompatible address books and myriad potential gaps as colleagues, clients and friends change jobs, move or switch Internet service providers.

So much for the ease of communicating in the digital economy.

Enter PlanetAll, a Cambridge, Mass.-based company that thinks it can resolve the address book nightmare. PlanetAll's mission is to keep you and your world in touch through its Web-based contact management service. Through licensing agreements with major online communities like Geocities and Lycos Inc., PlanetAll has already attracted 1.4 million users since the company was founded in late 1996. President and cofounder Warren Adams hopes to sign up more than 1 million additional users by year-end and, eventually, the entire population of Web-based professionals. "I set out to develop a product that would make it extremely easy to stay in touch with people," Adams says.

For users, PlanetAll is a free service that creates and automatically updates a password-protected Web-based address book with new information about their contacts. All contacts must be registered with PlanetAll in order for them to be included. Accordingly, after signing up for the service, you can populate your address book by searching some 80,000 groups of existing PlanetAll users (PlanetAll first sends those you select an e-mail message requesting permission for you to see their information and receive updates in the future) or by using a referral screen that sends an e-mail message to your friends and colleagues asking them to sign up with PlanetAll. A synchronization engine allows for integration with popular software programs such as Outlook and PIM software running on 3Com Corp.'s PalmPilot (Symantec Corp.'s ACT and Organizer will be supported in a fourth-quarter release); the result is that you can upload your address book when you register and PlanetAll can automatically update any address book you are running on a PC or PDA at work or at home.

According to CEO Jim Savage, the service frees busy profes-

sionals from the tedious job of managing contacts and makes personal networking more effective. "Right now it's entirely up to you to manage your network [of contacts], so how current it is and how many people are in it is a function of how much time and energy you or your assistant has to invest," he says. "We want to turn that model around."

The company's customer profile mirrors that of the Web: professional and highly educated, with an average age of 37. Kyle Shaver, a network engineer with Phoenix Technologies Ltd. in Irvine, Calif., has been using PlanetAll to keep his Outlook database current for more than a year. "If I had to change all this stuff manually, I probably wouldn't," he admits. Shaver says he has also made new contacts through the group search service that links members based on common interests or affiliations.

PlanetAll is accomplishing all of this through a combination of off-the-shelf and in-house-developed technology. To maintain privacy, a strict policy gives participants ultimate control over the information in their profiles and may restrict access to certain individuals. The PlanetAll site is hosted by NaviSite Inc., a Web hosting service provider that uses several layers of physical security. PlanetAll's site has also received privacy and security certification from TRUSTe and the Better Business Bureau. "Security is one of our most important issues and challenges," Savage says.

When founders Adams and Brian Robertson—PlanetAll's chief technology officer who developed the original product—began discussing the idea two years ago, they were colleagues at London consultancy Mitchell Madison Group. After maxing out their credit cards in 1996, the two raised \$1 million in "angel" financing before attracting venture capital funds. Geocities, the popular consumer "neighborhood" site, became one of PlanetAll's first partners in October 1997. Since then, PlanetAll has slowly migrated toward professional groups. More than 100 school alumni associations have committed to using PlanetAll, and





[www.planetall.com](http://www.planetall.com)

#### THE RIGHT CONNECTIONS:

Jim Savage says that PlanetAll's Web-based contact management service makes personal networking more effective.

Publishing to help launch ZD-Net and other Internet ventures funded by parent company Softbank Corp. "When I got introduced to PlanetAll, it looked too compelling to pass up," Savage says.

Savage has outlined a broad-based distribution and licensing strategy in which PlanetAll will partner with Web portals as well as with telecommunication service providers, major shippers and other businesses that could license the Distribution product and incorporate it into their intranets to help manage vast databases of customers. License fees will

be determined by the client's revenue model; if a client is Web-based, PlanetAll receives some portion of ad revenues generated at its site, for example.

The company's latest coup came in January 1998 in the form of an agreement with Lycos, which is a minority investor. A contract is also underway with a provider of unified messaging services to license the technology as an additional service for its customers.

Kate Delhagen, a senior analyst with Forrester Research Inc. in Cambridge, Mass., says that while PlanetAll's offering is unique and innovative, it may be two to five years before it takes off. Part of the struggle, she says, will be the "long and potentially excruciating process" of integrating the numerous e-mail and personal organizer products on the market.

PlanetAll has entered its second round of venture funding and has not yet posted any revenues—at press time the company was not yet profitable—but Savage expects 1998 to be the critical year. The company is already struggling to meet rising demand. "The biggest threat to our business is managing the explosive growth we're seeing," Adams says. The 35-person staff will expand by 10 to 15 over the next year to fill engineering, sales and marketing slots.

Assuming those challenges are met, PlanetAll could face a bright future. Says Delhagen, "They're absolutely on to something in terms of facilitating connections between an increasingly disconnected society." **CIO**

Senior Writer Polly Schneider can be reached at [pschneider@cio.com](mailto:pschneider@cio.com).

Bernard C. Harris Publishing Co. Inc. has licensed PlanetAll's technology for the Web-based alumni directories it provides to universities or other alumni groups. "The business model was always to make this thing ubiquitous and embed it in as many places as we can," Adams explains.

While PlanetAll is making some money from ad banners on its Web site—it declined to say how much—Adams thinks the company's biggest revenue generator will be corporate licensing of the technology. He calls it the "Intel inside" strategy, where other sites and software developers license PlanetAll under their own brand name. The result is that clients like Lycos offer the PlanetAll service as a contact management feature on their own sites. When its users sign up for the service, the client sends the registration information to PlanetAll, which manages the data. Clients may also license the actual technology—a separate product, called PlanetAll Distribution—and house the product and database on their own servers, allowing them to customize the service and data for their own members. "PlanetAll wants to be part of all these products but not a destination site in our own right," Adams explains.

To execute this strategy, Savage was brought onto the team in late 1997 after several years of experience directing Internet startups; most recently, he worked at Ziff-Davis





CONTENT THAT KEEPS VISITORS COMING BACK

## THE MAIN ATTRACTION

# Must-Haves

*Is your Web site missing any of these 12 essentials?*

BY SCOTT KIRSNER

**R**ECENTLY, I ASKED A HALF-DOZEN WEB DEVELOPERS whether they were starting to see common features show up in all of the sites they built.

You'd have thought I was pressing them for a murder confession.

"Our clients are looking for a strategic overview of business needs," protested Matthew de Ganon, president and vice chairman of K2 Design Inc., a publicly traded agency in Manhattan. "We don't have any cookie-cutter lists of what a site needs to have."

"Our credo is uniqueness, starting with a blank slate," argued Tim Mueller, a cofounder of Cleveland's Vantage One Communications Inc., which has built sites for Marriott International Inc., TRW Inc. and Camelot Music Inc. "Having a formula is pretty antithetical to the way we market our services."

What else would you expect from creative types who thrive on doing

things differently? For the past four years, the field of Web development has upheld no standards, adhered to no rules. Too often, however, the result has been brash, startlingly unique Web sites that are missing many of the essential elements Web users have come to expect. What good is a commerce site, for example, without a prominently placed "Order Now!" button?

Eventually, I did find a few designers who didn't blanch at the notion that today's most successful Web sites share some of the same building blocks.

"The architecture of a corporate Web site is becoming more conventional, and there's nothing wrong with that," says Claudio Luis Vera, a partner at Black Bean Studios in

Boston who has worked with clients including Digital Equipment Corp., Intellicast (a service of WSI Corp.), Boston's Museum of Science and New England Financial. "It's like book design. Over the years, people decided the preface should be in the front, and the page numbers here, and the index there. It benefited the reader and the publisher. Three or four years ago, when you built a Web site, it took a whole strategy team to figure out what it should contain. But now, people have settled into some basic grooves, and that lets them—and us—focus on some of the higher-level aspects of developing sites. You can spend more time writing the book."

Acknowledging that many Web pioneers still feel the medium is changing too quickly to allow rules to be written, I propose the 12 items below as must-haves.

### 1. A "What's New" section

Too many Web sites seem to have sunk into a state of suspended animation. Either nothing's been added since the day they were launched, or you just can't find it.

Look at the site for Oakley Inc.'s sunglasses ([www.oakley.com](http://www.oakley.com)), which really contains two "What's New" sections: one called "R&D Department" and one called "New Inventions." Oakley's trendy customers want to stay on top of all the latest fashion ripples. At Virtual Vineyards ([www.virtualvineyard.com](http://www.virtualvineyard.com)), wines move through the site's inventory every six weeks. Customers want to know about the vintages in stock, so the site has a prominent "What's New" page.

The Web thrives on newness. Whether you add new content to your site daily or annually, make sure visitors know where to find it.

### 2. A search engine or site map

Big sites need a search engine that produces meaningful results. Apple Computer Inc.'s site ([www.apple.com](http://www.apple.com)), for example, turns up a bevy of relevant results when asked about the company's new iMac. Smaller sites need a site map



ILLUSTRATIONS BY SCOTT MATTHEWS





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or table of contents that clearly lays out what content is where.

If you choose to make it difficult for users to find what they're looking for, users will choose to look elsewhere.

### 3. A feedback mechanism

Despite all the jabbering about the Internet being the first true two-way medium, not enough sites offer a simple way for customers to make their voices heard. The majority offer a simple "mail to" link, which opens up a blank mail message, usually addressed to the webmaster. Even better is a pull-down menu that lets users route their feedback to a specific place (sales, service, engineering, the CEO). An automatic response, which lets users know that their message was received, is also a good idea. And the most successful sites read all the feedback they receive and respond to much of it.

### 4. Consistent navigation

"We devote about 40 percent of our time to creating a really good navigational scheme," says Vera. "It needs to be intuitive, predictable, consistent and highly visible. And don't stash it below the fold—put it high on the screen." Navigation needs to tell users where they are within a site, as well as where they can go from there. Visit Backroads ([www.backroads.com](http://www.backroads.com)), a Berkeley, Calif., company that runs biking and hiking tours, for an elegant example. The navigation never abandons you, no matter where you go.

### 5. Security information

Until consumers become more comfortable with submitting credit card information over the Web, commerce sites need to include an explanation of their security protocol and indications of when a transaction is secure.

### 6. Linking instructions

Want more traffic? Why not encourage other sites to link to you and provide the HTML code to help them do it?

The first place I saw this feature was on Yahoo Inc.'s Yahoo.com, and it

remains the leader. Initially, it offered up downloadable logos and a few lines of HTML that let visitors install a graphical Yahoo link on their own sites. Now, Yahoo.com has a whole section called "Yahoo to Go" ([www.yahoo.com/docs/yahootogo/index.html](http://www.yahoo.com/docs/yahootogo/index.html)) that provides searches, maps, stock quotes and weather reports that users can put on their own pages.

Yahoo.com is the most popular site on the Web for a reason. Follow its lead.

### 7. Privacy policy

If your site asks visitors to volunteer information about who they are, it has become de rigueur to draft and display a privacy policy. How will you use the information that visitors give you? eToys, which aims to be the Amazon.com of the online toy market, has a Privacy Pledge ([www3.etoys.com/shopping/etoys/html/privpledge.shtml](http://www3.etoys.com/shopping/etoys/html/privpledge.shtml)) that promises, "eToys will never sell or share your personal information with any other third party unless we have your explicit permission to do so."

### 8. Location, location, location

Does your company cease to exist in the real world once you launch a Web site? Unlikely. But you'd be surprised at how many sites neglect to include the company's address and phone number in a prominent place.

Think about also posting driving directions and a map. While some may argue that putting a phone number on the site will generate dozens of annoying phone calls, the map will doubtless eliminate dozens of annoying requests for directions.

### 9. Affiliate program

Amazon.com invented it, but other commerce sites are following suit. The idea? To attract more customers, start an "affiliate program" that rewards other Web sites for helping you generate business. Forrester Research Inc. in Cambridge, Mass., has dubbed the practice "syndicated selling," and Amazon.com, eToys and online music store Music Boulevard

are all prospering from it. Hundreds of sites build links to their storefronts and are given a small percentage of any resulting transactions.

### 10. Easy-to-use tools for updates

On the back end, hidden from the visitor's view, Web site operators need good tools for managing their content. It shouldn't take an eagle-eyed HTML expert to add a new management bio to your Web site or post a press release. But few Web design shops offer such tools; they'd rather have clients rely on them to do updates.

c2o Interactive Architects, a Dallas-based business unit of systems integrator EDS, is different. "You have to take content management into consideration when you start developing your site," says James Marzano, c2o's vice president of design strategy. "You need the right tools to update your site and also to check things and get approvals before you make new content accessible."

### 11. Style guide

If you leverage the people within your company—and not just your Web developers—to add content to your site, you'll need a style guide. How big should the headlines on your product spec pages be? Does there need to be a "feedback" link on every page? The style guide codifies that sort of thing.

### 12. Simple traffic reports

Gauging the effectiveness of a Web site requires solid reporting. Sites need to pick a set of metrics and stick to them—are you tracking page requests, unique visitors or orders?

"You can spend a lot of time doing log analysis without actually learning anything," says Steve Russell, a partner at Internet professional services firm USWeb Corp.'s Silicon Valley office. "Think about the ways people use your site and what you want to know, and then find ways to track that."

Do you see any must-haves that I've missed? Or maybe you disagree with the whole idea. Let me know. **CIO**

Scott Kirsner is a Boston-based writer. He can be reached at [kirsner@worldnet.att.net](mailto:kirsner@worldnet.att.net).





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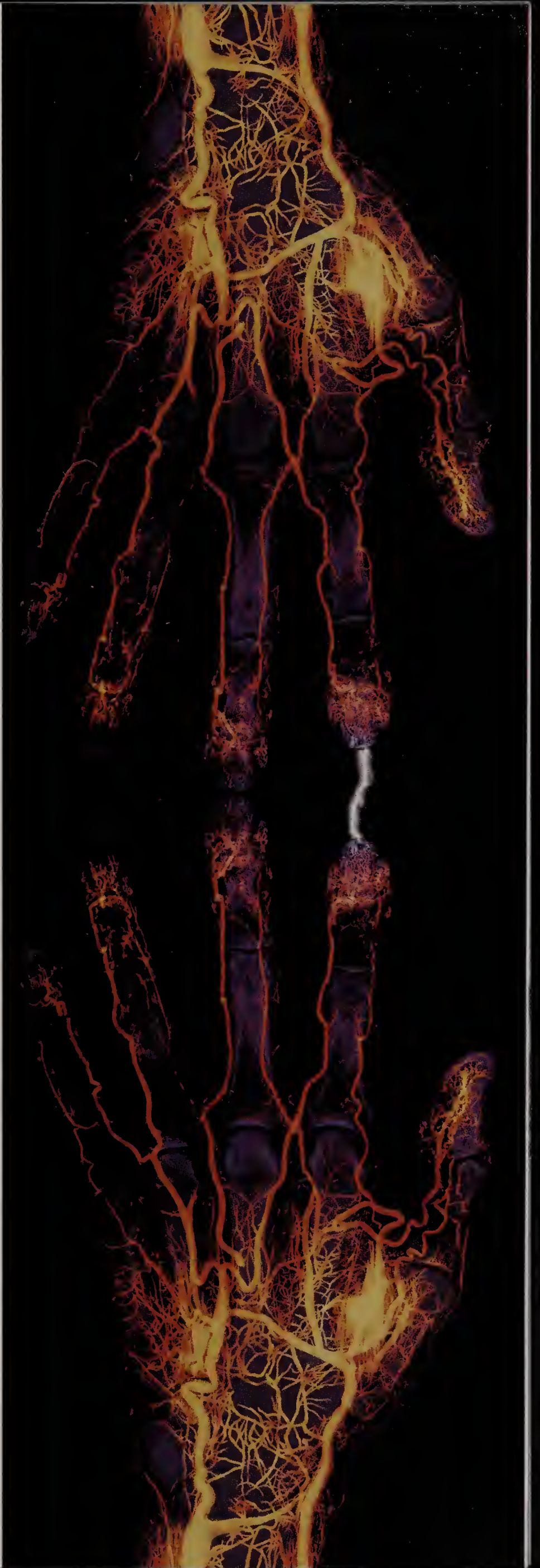
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# Spyer Beware

*Not knowing the legal limits of competitive intelligence has always been risky. The Web has made ignorance more risky than ever.*

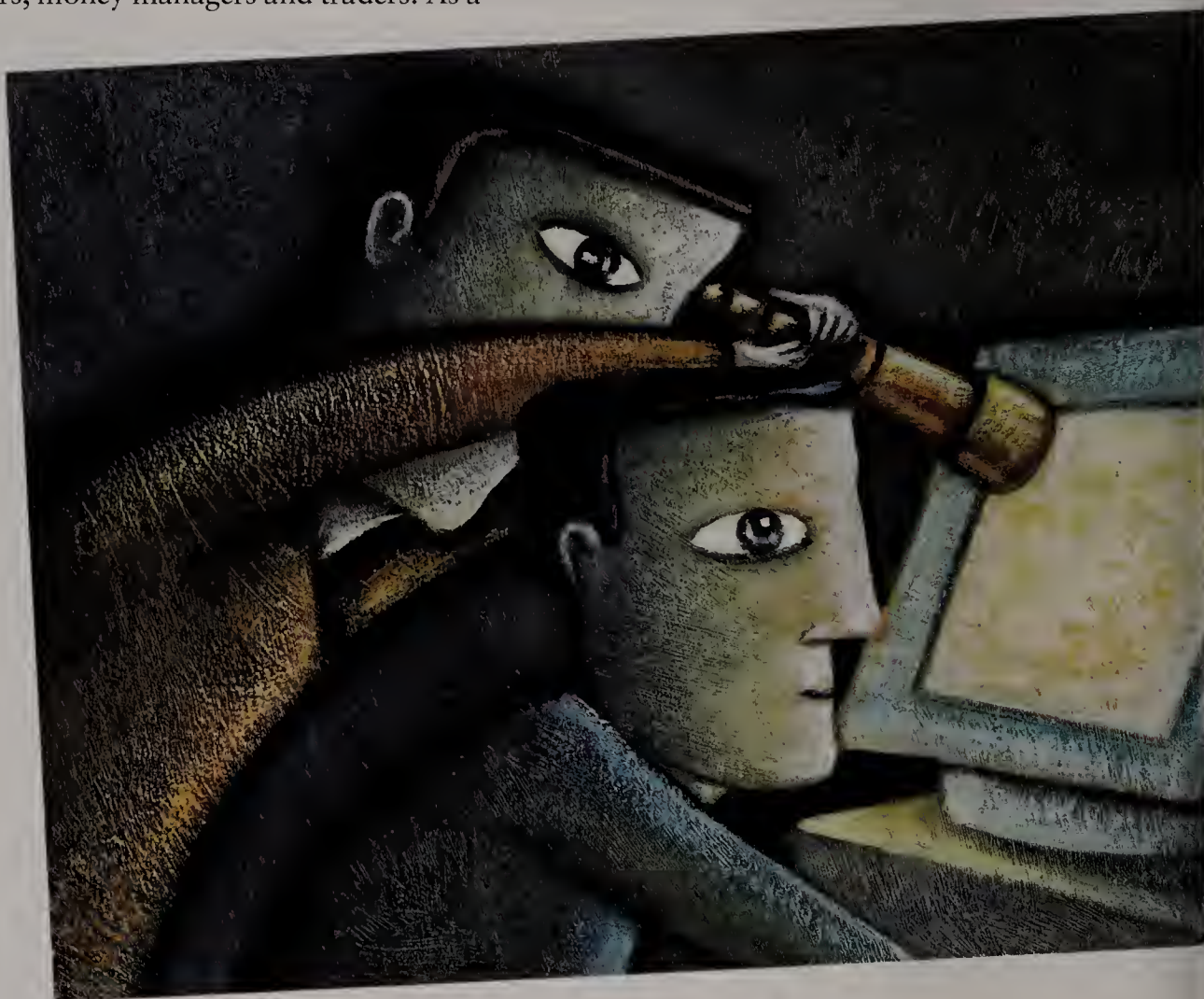
BY LEONARD M. FULD

**A** SENIOR VICE PRESIDENT OF A LARGE BANK RECENTLY came to our company asking for help. He was under pressure to respond to his chief rival's recent IT strategy. The rival had somehow managed to deliver a great deal of information to the desktops of loan officers, money managers and traders. As a result, the rival had a lot of happy customers and was quickly gaining market share. To learn what the rival had done, according to some of the people we talked to, management of our client's bank was ready to undertake several risky information-gathering activities, including misrepresentation—actions that could have caused much bigger problems than those they hoped to solve. They could have, for example, landed the client in jail.

This news will not surprise consultants working in the area of competitive intelligence. Most of the managers I have met are entirely ignorant of the legal rules we must all play by when gathering information.

That kind of ignorance has always been dangerous, but today it is more dangerous than ever. As an open information source, the Web has given business strategists access to competitive information never before available. Because companies are no longer limited by printing and distribution costs, they tend to wax long and candidly about their products and services. Most home pages reveal far more than do printed annual reports: Organization charts, job postings, strategic alliances and price lists are some of the intelligence-rich disclosures available to every visitor to many corporate home pages. In

a survey my firm conducted last year, we discovered that 95 percent of the corporate strategists and analysts we interviewed stated that their organizations were generally not aware of the Economic Espionage Act, passed by Congress in October 1996. They should be. The EEA is serious business. This law further refines the definition of a trade secret and raises trade secret violations from a possible civil to a criminal offense. It states that anyone convicted of stealing a trade secret under the EEA can be fined up to \$500,000 and can face a jail term of up to 10 years. The company doing the snooping may receive fines of up to \$5 million. This law has already



helped the Justice Department prosecute people who have allegedly stolen trade secrets regarding the Taxol product from Bristol-Myers Squibb Co. and shaving technology from Gillette—where the defendant has pleaded guilty.

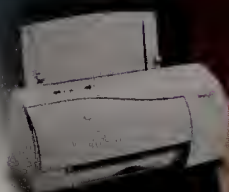
And while the federal government

ILLUSTRATION BY PHILIPPE BEHA

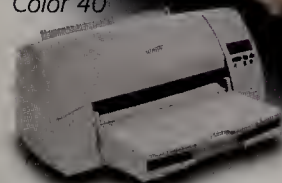


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has so far prosecuted only a half-dozen cases, the lack of legal action should not suggest that the Justice Department doesn't care. The government recognizes the ever-increasing value of intellectual property to U.S. economic vitality and will continue to raise the punishment for those who attempt to steal that property. So what can a corporate researcher do? Where does responsible vigilance cross the line and become criminal activity? According to the EEA, the new Web intelligence game rules could proscribe activities in the following areas:

■ **Customer lists online.** Breaking into a company's site to obtain the rival's customer lists. Under the EEA, a company's customers fall under the intellectual property umbrella.

■ **Electronic communications.** Electronic mail, teleconferencing and the Internet have greatly increased the amount of documentable information that travels between business partners. Under the EEA statute, you could be prosecuted if you receive information containing anything that could be considered a stolen trade secret even if you had no knowledge that it was being sent to you.

■ **Interviewing.** Just because you found your expert through a corporate Web site doesn't mean you can ask any questions you want an answer to. Whether on the telephone, in person or online, you should identify who you are and where you are calling from. If you know that the company you are targeting has information it is treating as confidential, you may be stepping over the line simply by asking someone for it—even if you have previously identified yourself.

Bear in mind that if a company releases some of this information on its public home page, that is its business. However, if you use devious or illegal means to access this data via a corporation's intranet or Web site, then you may receive far more than a slap on the wrist. As might be expected with a medium that entered the mainstream of business culture less than three years ago, there is a vast territory where the law is vague and business ethics are still being worked out. In these areas senior executives need to exercise caution. For starters, they should ensure that the following don'ts are observed:

■ Never have someone send an e-mail posing as a student looking for more in-

formation on the industry for a term paper about the company.

■ Never place a job posting on various listservs or directly in help wanteds on the Net that you know will attract those at the rival who know something you want to learn.

■ Never respond to a help wanted ad placed on the rival's home page so when you arrive at the rival's offices you can turn the interview around and interview

## Anyone convicted of stealing a trade secret under the EEA can be fined up to \$500,000 and faces a jail term of up to 10 years.

the interviewer, gleaning information about the rival's strategic intentions.

■ Never encourage a hacker to invade the rival's Web or intranet infrastructure and record all of its Web transactions, including inquiries that the rival's marketing department may make to prepare for a new product introduction.

While no one has defined industry norms for intelligence gathering either on or off the Net, most companies know what kind of actions will make them look good or bad in the public eye. Let's call this legal/ethical litmus test the Harm Rule. The Harm Rule states that if you feel your action would embarrass your company should news of that action leak to the newspapers the next morning, then don't do it.

The Harm Rule provides an excellent test to determine how far you should go on the Net to gather information on Company X. Will you use the Anonymizer (an Internet site that disguises your e-mail address and identity), or will you let the person receiving your e-mail know your name? These are among the Internet intelligence questions you need to answer for yourself before beginning your competitive knowledge quest.

Intelligence on the Net need not be an illegal or even unethical venture. You can gather a great deal of information on the competition without worrying about crossing over the espionage line. Many competitive analysts, like those in my firm, do it all the time. Here, for example, are the steps we followed to gather information for the worried banker.

**Step 1. The Gathering.** We conducted a comprehensive search of secondary sources, using the Internet and other sources, home pages and government documents. We did this to fine-tune our understanding of the rapidly changing issues. But most important, we performed this first scan to learn the names and affiliations of key individuals in this field.

**Step 2. Finding the Experts.** Using a number of search engines, we located ex-

perts such as conference presenters, book authors and individuals who posted their résumés on their own home pages.

**Step 3. Interviewing.** We dedicated the majority of the time to interviewing these individuals who, because they directly or indirectly interact with potential rivals, knew the rival's operations, moves and plans. In all instances, we identified ourselves and if asked about who our client was, we stated that we could not reveal that information. In the end, we located over 60 experts, but because of the specificity of the questions, we ended up with 18 finely tuned interviews that would later feed into our analysis.

Within five weeks, we learned several things: The rival was less a threat than our client first thought. Second, his aggressive stance in the market came primarily from a very strong telemarketing sales force—not from some powerful banking workstation. We learned about the firm's satellite sales operation as well as about its back-office IT operation supporting trading and administration. In short, we presented a detailed blueprint of the competitor's operations.

The client was pleased. Had he known that other courses of action being considered by his bank could have invited expensive legal problems, he would have been even more pleased. **CIO**

*Leonard Fuld is president and founder of Fuld & Company, a Cambridge, Mass., competitive intelligence research and consultancy. You can reach him through his firm's Web site at [www.fuld.com](http://www.fuld.com).*





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For IntelSat, running a fleet of 20 high-powered satellites was the easy part. The challenge? Getting closer to customers around the globe. Today, the Web is making it happen.

BY SARI  
KALIN

# SPATIAL RELATIONS

**It's been a few years**, but Charles Ross can remember that January sales call. Maybe it was because he arrived during a driving blizzard, the kind that would have closed any North American airport for days. Or maybe it was because he flew all the way to that oil field in Tatarstan, a few hours east of Moscow, and still didn't get the sale. Either way, the day is etched into his memory.

Had Ross been distributing denim work shirts, it would have been easy to toss a few of the latest samples into his suitcase. But Ross was reselling a far more complex product: satellite services. His potential customer, a Russian oil company, wanted to beam corporate

## Reader ROI

BY READING THIS STORY, you'll learn

- ▶ How an extranet can help a global organization stay connected with a diverse set of customers worldwide
- ▶ How to deal with security concerns
- ▶ Why soft benefits are sometimes more important than hard returns
- ▶ When there are limits to what a Web site can do





**Vice President and CIO  
Ramu Potarazu:** *"We've  
allowed customers to access  
our information faster and  
more efficiently. For the  
money we spent, we've got  
more than our money's  
worth—much more."*



voice and data traffic from its drilling operations in Tatarstan to offices in Moscow and other locales. Ross arrived in Tatarstan armed with information on IntelSat, an international organization that runs a fleet of 20 high-powered satellites that send telephone, television and data transmissions around the globe. But the oil company wanted more up-to-date information on IntelSat satellite availability than Ross had on hand. He could get that information only from IntelSat's headquarters in Washington, D.C., not the easiest place to reach during Tatarstan business hours. "You're in some deputy minister's office, and you need to come up with answers right now," explains Ross, president and CEO of The Beednet Group, an Austin, Texas-based wireless and satellite carrier that runs its major satellite operations out of Prague. "Whatever you've brought is not enough."

Now, Ross and other IntelSat customers have an easier way to find answers to many of their questions, whenever and wherever they need them. IntelSat has built an extranet, dubbed the IntelSat Business Network (IBN), that lets IntelSat customers worldwide get the technical and sales information they need to better serve their customers. For example, if a Beednet customer wants to set up a distance learning project between locations in Europe and Asia, Ross can check on IBN to find an IntelSat satellite that can relay video transmissions between those two regions. Once he finds a satellite with the right coverage footprint, he can check to see if it has transmission capacity available roughly during the time slot his customer needs. He can also find out which European and Asian telecommunications firms have satellite antennas, or "earth stations," pointed at the satellite, and he can find out whom to contact to see if the dishes are available to transmit and receive the video. He can even calculate the tariff for the satellite service, so he can get an idea of what to charge his customer. And he can do it all at any time of day, Ross says, whether he's at his office in Prague or making a sales call somewhere "in the middle of God's country."

To fully appreciate IBN, which won a CIO Web Business 50/50 Award this year (see CIO Section 2, July 1, 1998), it helps to understand more about IntelSat. An international treaty formed IntelSat (The International Telecommunications Satellite Organization) in 1964, with the following mission: offering advanced telecommunications services to all nations and charging each nation the same rates to use the service. Any one satellite can "see" only a portion of the world, so a fleet of satellites would be needed to offer worldwide coverage. In 1965, when it had just a handful of members, IntelSat launched the world's first commercial communications satellite, able to connect North and South America with Europe and Africa. Today, IntelSat numbers more than 140 member countries. With 20 satellites in orbit, IntelSat's coverage spans the globe, and it pulls in nearly

## IntelSat at a Glance

### Organization

The International Telecommunications Satellite Organization (IntelSat)

### Founded

1964; launched first satellite in 1965

### 1997 Revenues

Approximately \$1 billion

### Number of member countries

143

### Number of countries and nations served by its satellites

200

### Number of satellites

20 (recently spun off 6 satellites into a private company called New Skies)

### Services offered

Voice, data, video

\$1 billion in revenues a year. An additional six IntelSat satellites have been transferred to a private IntelSat spinoff company, called New Skies Satellites, that started operations this year and is expected to have an IPO in 1999.

If you make a long-distance call from New York to Johannesburg or watch a World Cup soccer match on television, chances are good that an IntelSat satellite is somewhere behind the scenes. IntelSat works essentially like a wholesaler; although a few multinational companies contract directly with IntelSat, the vast majority of IntelSat's customers are carriers that resell its services to end users, says Susan Gordon, manager of media and industry relations at IntelSat. Those end users include international broadcasters like CNN and BBC, long-distance telephone firms such as AT&T and British Telecom, and international manufacturers, news wire services and banks.

IntelSat's members oversee all of its operations via a board of governors comprising member country representatives. But to run things day-to-day, IntelSat has a 600-person staff in Wash-

ington, D.C. These staffers include a round-the-clock team of engineers who control and maintain the satellites' geostationary orbits, a team that helps users who have technical problems accessing IntelSat satellites and a sales and marketing group that works with IntelSat's resellers. IntelSat owns and runs its satellites; resellers, or in some cases end users, own and run the earth stations that communicate with the satellites.

**WHILE** INTEL SAT'S OPERATING STRUCTURE IS unique, the pressures that drove it to build an extranet will sound familiar to many companies: a changing global customer base and an increase in competition. On the customer front, each member country that signs the IntelSat treaty designates one or more local companies to resell IntelSat's services within their country. Those local resellers, called signatories, invest in IntelSat in proportion to how much they use its satellites; they receive any profits in proportion to their investment. (Resellers in nonmember countries can also access IntelSat satellites, even though they do not invest in or share profits from IntelSat.) Traditionally, signatories and other resellers were state-owned telephone companies that had done business with IntelSat for years, Gordon says. Over the years, however, as telecommunications services have become privatized and open to competition, some IntelSat member countries are letting more and more resellers buy services directly from IntelSat. That means IntelSat is doing business with far more customers than it used to, and with far more customers that may not be familiar with IntelSat's intricacies and capabilities.

Even as the customer base has grown, those customers have



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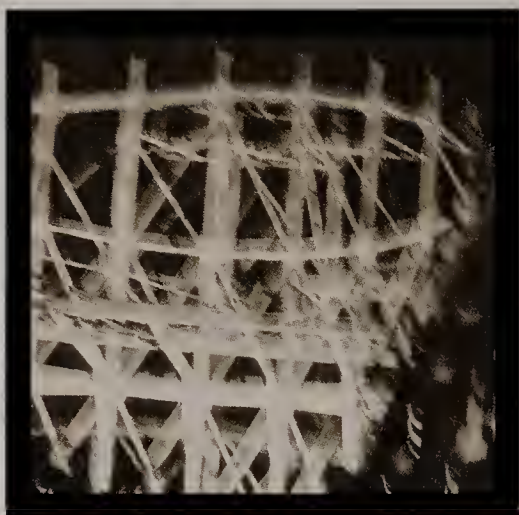
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## COVER STORY: GLOBAL EXTRANET

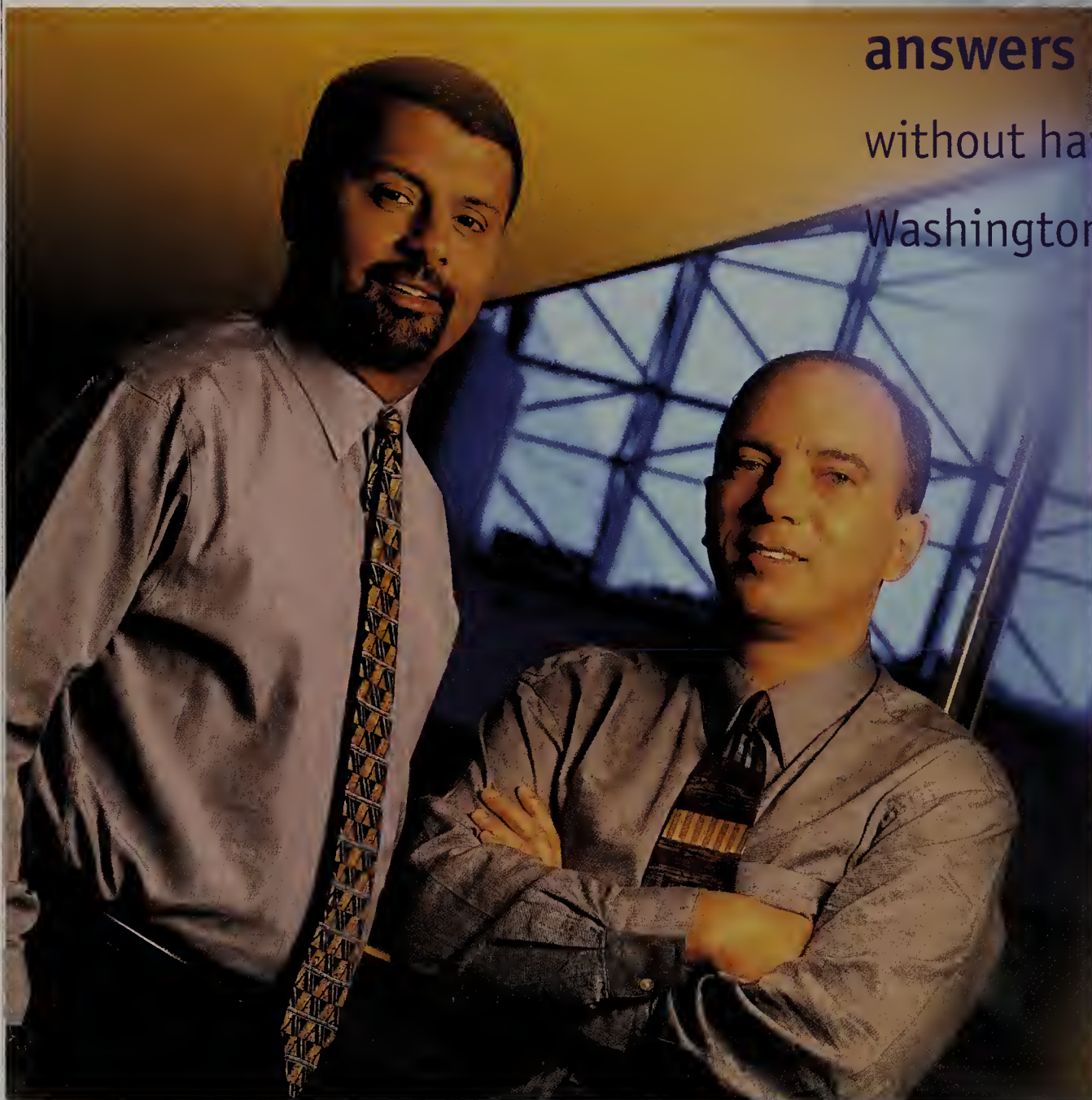
had more and more non-IntelSat communication options open to them. Regional satellite networks have developed in Asia, South America and elsewhere. And in the early 1980s, the FCC ended IntelSat's monopoly on international satellite traffic entering and leaving the United States, allowing commercial satellite competitors such as Greenwich, Conn.-based PanAmSat Corp. to go after the lucrative U.S. market, Gordon says. Fiber-optic cable also offers an alternative means of transmitting international telecommunications traffic. Says Delwin Brockett, IntelSat's director of information products and strategies, "We're fighting for shelf space and mind share."

Until recently, IntelSat was fighting that fight solely from a silver-and-glass building not far from the National Zoo, thousands of miles away from most of its customers. Signatories meet in Washington, D.C., only a few times a year, when they decide on IntelSat's budget, operating plans and any policy changes. Signatories and other customers relied primarily on phone, fax, telex and courier to get day-to-day information and place orders. Faced with competitors opening overseas offices, IntelSat opened its own regional support centers in London, Bombay and

Singapore in 1996. But with the bulk of the engineering and sales support in Washington, IntelSat "needed to find a way to be more in [its] resellers' lives," says Tom Eaton, IntelSat's director of worldwide sales and marketing.

In 1996, the sales and marketing group started kicking around the idea of building a sales information system. Work-

Satellite coverage maps,  
**capacity listings** and  
tariff calculators would  
make it easier for **far-flung**  
customers to get quick  
**answers to questions**  
without having to call  
Washington.



Teamwork between Ramu Potarazu and Tom Eaton, director of worldwide sales and marketing, and their divisions led to the creation of IntelSat's global extranet.

ing with IntelSat's Information Systems Management (ISM) group, it developed a sales and marketing intranet, says Eric Fishman, IntelSat's senior product manager for information products and Internet initiatives. As the intranet grew and Fishman and Brockett got to see firsthand the Web's potential, they decided to try to take that a step further: Develop a Web site focused on sales and marketing that could be used by IntelSat staff in Washington and overseas, as well as by external customers.

Fishman and Brockett already had a good idea of what they wanted to see on the extranet. Each board meeting can generate an 8-inch-thick packet of corporate documents in English, French and Spanish that has to be mailed out to all the signatories before the meeting's start. Putting those on the extranet would let signatories take an early look at them and reduce the need to send extra



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copies to those organizations later. Satellite coverage maps, capacity listings and tariff calculators would make it easier for far-flung customers like Ross to get quick answers to questions without having to call Washington. Posting the listings of earth station operators and antenna capabilities also made sense, since the paper versions were out-of-date as soon as they were printed. Offering contact information for customers' operations staff worldwide would be just as important as having contact information for IntelSat staff, since each satellite transmission takes two parties to make it work, one responsible for the uplink and one for the downlink.

## ISM's

**CHALLENGE WAS TO** strike a balance between what Fishman and Brockett wanted "and what we could technologically give them," says Ramu Potarazu, IntelSat's vice president and CIO, who oversees ISM. Security was Potarazu's chief concern, since IntelSat's satellite control center makes up a large part of the traffic and the devices on its corporate network. Letting customers come in over the Internet and directly access corporate databases posed too much of a risk. Potarazu, who is also charged with implementing IntelSat's information policy, needed to make sure that only those users authorized to access specific databases and corporate documents would be able to do so.

To limit access to confidential documents, Potarazu's crew decided to password-protect IBN and use access controls; when users want to click on a sensitive resource, such as a tariff manual or a satellite launch schedule, the site checks their ID to make sure they are allowed to see those items. ISM also proposed a database compromise: copying portions of key databases onto a server outside the firewall, Potarazu says, rather than letting customers access the corporate data directly.

IntelSat is not alone in its concerns about extranet security, notes Heather Ashton, an analyst for Internet Business Strategies at The Hurwitz Group, a consultancy in Framingham, Mass., and replicating the data to another server outside the firewall is one way to get around those security concerns. But some companies have already begun giving customers direct, secure access to their systems. Over the next year or so, she predicts that more and more companies will do so, and more and more customers will demand it. "The whole point of the Web and an extranet is that you have immediate access through your keyboard," Ashton says. "You don't have to pick up your phone and take the extra step."

Potarazu brought the IBN business plan before IntelSat's executive steering committee, which includes its CEO and other top executives. He estimated that the project would cost only about

\$500,000, but he used soft benefits, such as getting closer to customers and making it easier for them to do business with IntelSat, to make his case. "Because it's under a million dollars, we said, 'Look, there's some things you have to do,'" Potarazu says. At this writing, total costs have been \$650,000, a bit higher than the estimate, and Potarazu would not reveal hard numbers on ROI. Still, Potarazu says, IBN's benefits are clear. "We've allowed [customers] to access our information faster and more efficiently, but I can't sit there and say, 'It's \$5 and 10 cents cheaper,'" Potarazu says. "For the [money] we spent, we've got more than our money's worth—much more."

IntelSat launched a pilot in May 1997, opening IBN to 600-plus internal staff members and to a special group of broadcast customers. The broadcast group, a community of customers from 30 countries that use IntelSat to send television transmissions, meet together in person twice a year and wanted a way to stay in touch with each other and keep closer tabs on IntelSat's offerings. IBN offered them a list of users, a newsletter, satellite capacity information, some background technical documents and some advertising materials that the marketing group wanted broadcast customers to review. In July, IntelSat used the site to post a draft publication, get comments from the broadcast group and revise it, all within a week, far less time than it would have taken to send a document by courier and get comments via fax, Brockett says.

Soon after, Fishman says, IntelSat let the rest of its customers



Eric Fishman, Missy Siwick and Delwin Brockett worked to strike a balance between sales and marketing's needs and what was technologically possible.





## COVER STORY: GLOBAL EXTRANET

access IBN. At this writing, IBN passwords have been issued to roughly 700 users at more than 200 customer organizations; that's only about a third of IntelSat's customers, but those customers account for more than 70 percent of its revenues. Not including IntelSat staff, IBN averages 600 to 1,000 hits and 70 to 100 user sessions a day, drawing users from Australia to Argentina and from Spain to Singapore. Customers can use IBN over any Internet connection, Fishman says; in areas that don't have reliable Internet access, customers can reach IBN over IntelSat's private satellite IP network.

**LITTLE** BY LITTLE, INTEL SAT has added more technical publications and database information to IBN. One planned addition this year is customer-specific lease information; access controls will ensure that a customer sees only its own lease data. IBN has absorbed the sales and marketing intranet under a special area that only IntelSat staffers can enter. It has been able to house

new initiatives that no one thought of when IntelSat first launched the site, Fishman says, such as a special area for Potarazu's Y2K working group. To build interest in new satellites among potential customers, IntelSat has even used IBN to show live video of an IntelSat satellite launch.

IBN's design tries to compensate for the fact that customers do not access corporate databases directly. For example, IBN shows a "snapshot" of available satellite capacity on one day of each month for the next 12 months. That information is replicated from the satellite capacity database and is updated every day, giving customers an idea of what capacity is generally available. Customers can search for available capacity that meets their timing and technological needs; they can then submit a capacity request form over the Web. On the back end, the form gets translated into an e-mail that is broadcast to IntelSat's entire customer service team, which promises a response within one business day.

Having that capacity information online helps customers like British Telecom's Kevin Livesey give his customers, broadcasters who lease satellite time for 10-year intervals in multimillion dol-

lar contracts, quick preliminary answers about whether or not capacity is available. "Before, you'd have to call IntelSat and hope someone was there, or you were looking at a month-old printout," says Livesey, service planning manager at British Telecom's Broadcast Services based in London. "You certainly couldn't search on what capacity might be available." Beednet's Ross says doing the homework online ahead of time cuts down on the number of questions he needs to ask customer service reps. "They can focus on specialized questions and our specialized needs," Ross says, "rather than paper shuffling."

Still, IntelSat has found that there are limits to what a Web site can do. It came up against them when sales and marketing sought to update a satellite capacity reservation system used by "occasional use" television customers. Those customers book short-term leases on IntelSat satellites for their customers, primarily television organizations covering breaking news events, such as Princess Diana's funeral. So they need to be able to see precisely what capacity is available. At the time ISM began developing the application, called TVMax, in late 1996, Java offered the only way for a Web browser to enforce complex business rules like the ones TVMax required. But Java has its drawbacks, especially if users are not using the latest browser versions.

"Many organizations don't allow Java through their firewalls," says Missy Siwick, project manager for marketing sales and revenue systems, "and not all browsers support Java or are set up to support Java." In order to offer the needed

functionality, and to make it available to the maximum number of users, developing a Windows-based client that would run over any Internet connection made the most sense. The software, released in January of this year, allows customers to check occasional use satellite capacity, place or change orders, book a service directly and get confirmation from IntelSat online. It replaces an earlier system that required customers to have a leased line to access it. Since the occasional use TV booking database is on its own LAN, giving customers real-time, read-write access to the system was less of a security concern, Siwick says; IntelSat also is deploying smart cards to authenticate TVMax users.

In the future, Fishman says, IntelSat's sales and marketing group would like to see TVMax and IBN converge. Ideally, they'd be able to offer TVMax-style transactions through a browser, that is, let customers see what capacity is available and let them book that capacity online. Beednet's Ross, for one, looks forward to the day when he no longer needs to send faxes back and

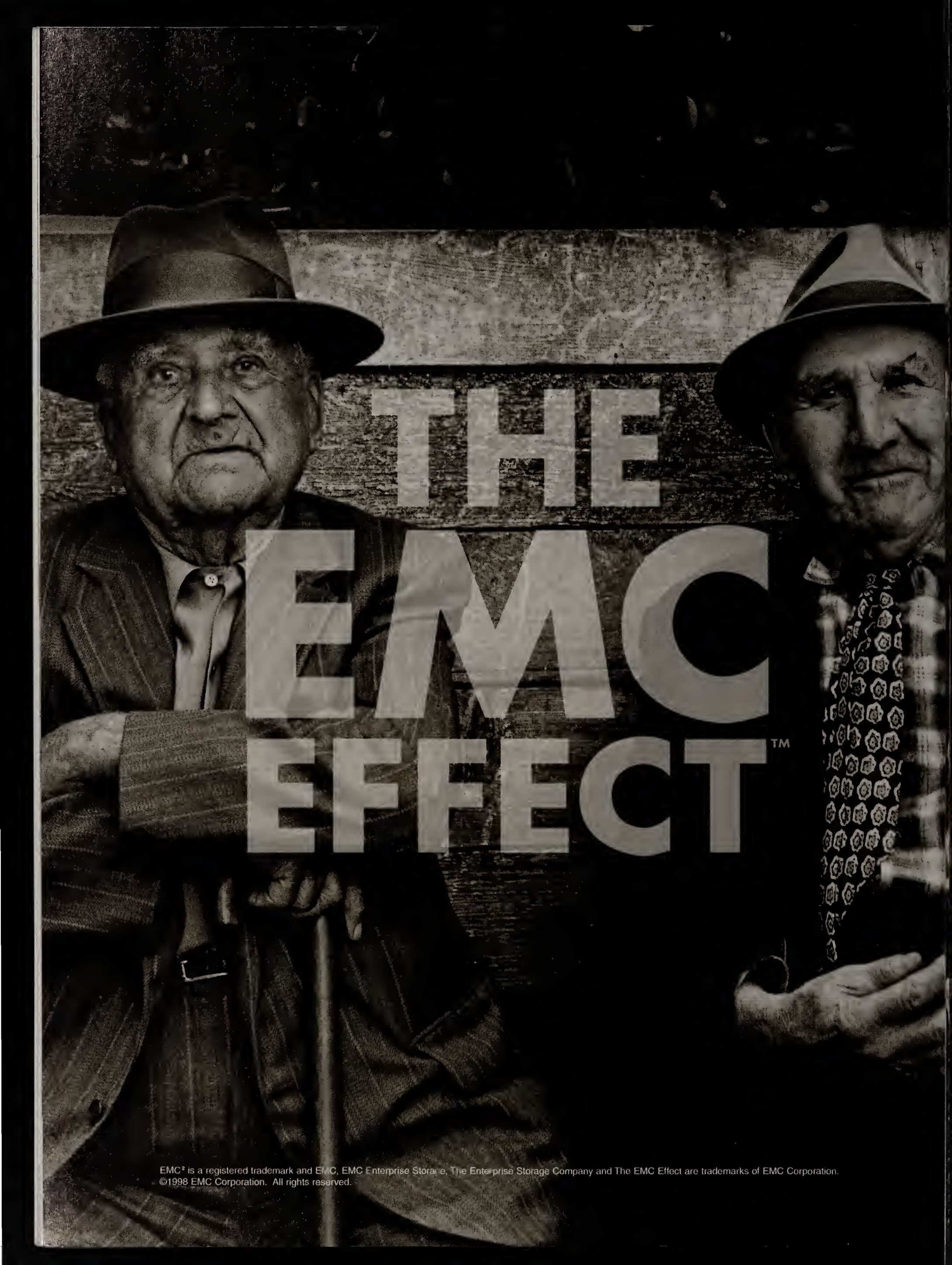
forth to Washington, especially when he's on the road: "Faxes from developing countries look terrible." **CIO**

### IntelSat's IBN Toolbox

- HP Unix servers
- Netscape Web server
- Netscape proxy server
- FrontPage
- HotMetal Pro
- HP NT server
- Microsoft IIS
- Microsoft's Active Server Pages
- VBScript
- Java
- JavaScript
- Oracle
- PL/SQL

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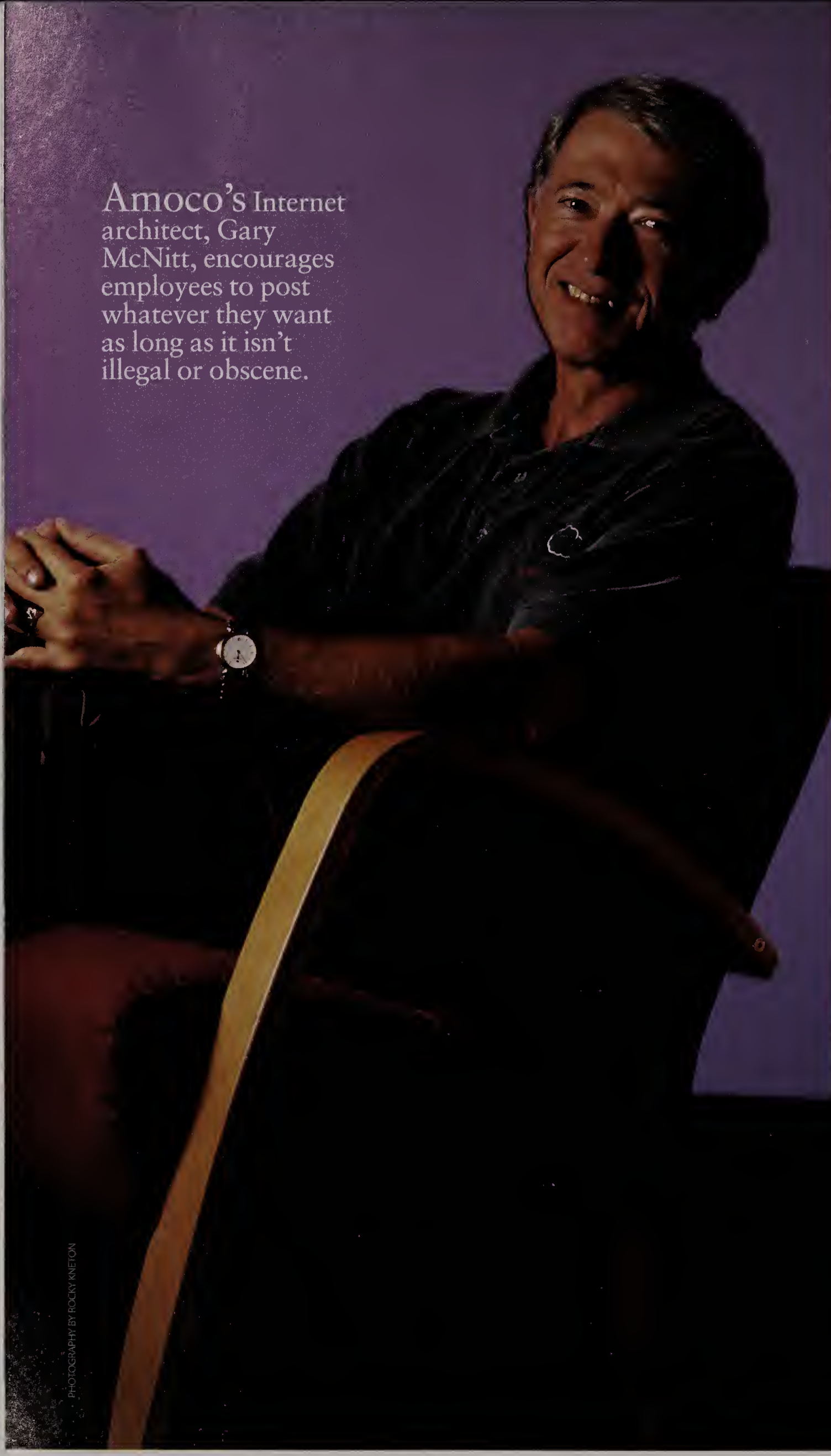
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A man with short, dark hair, smiling and sitting in a dark chair with a light-colored wooden backrest. He is wearing a dark, short-sleeved button-down shirt and a watch on his left wrist. His hands are clasped in his lap. The background is a solid purple color.

Amoco's Internet architect, Gary McNitt, encourages employees to post whatever they want as long as it isn't illegal or obscene.

A man standing next to a large, dark screen or monitor. He is wearing a dark shirt. The background is a solid orange color.

Chevron's Web team leader, Joni Johnson, guides the design of Chevron's intranet to help achieve strategic goals.

PHOTOGRAPHY BY ROCKY KNETON

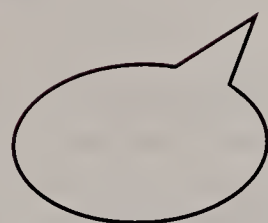


Two companies  
in the **same**  
business build  
**similar** intranets  
but govern them  
**differently.**

Here's why.

# He says, She says

BY RUTH GREENBERG



Amoco and Chevron have a lot in common, and so do their intranets, but the similarities end when it comes to their philosophies of how those intranets should be run. At Amoco Corp., Internet Architect Gary McNitt's IT Shared Services department takes a decentralized approach to intranet management, encouraging various business units to publish whatever they feel is appropriate, from safety regulations to bowling scores. At Chevron USA Production Co. (CPDN), every bit of information is made to fit a carefully planned mold. All content has a content owner who is responsible for every word published on his or her intranet property. The design of each page must also meet the standards and policies set by CPDN Web team leader Joni G. Johnson from the company's IT organization and

## Reader ROI

IN THIS STORY, READERS WILL LEARN

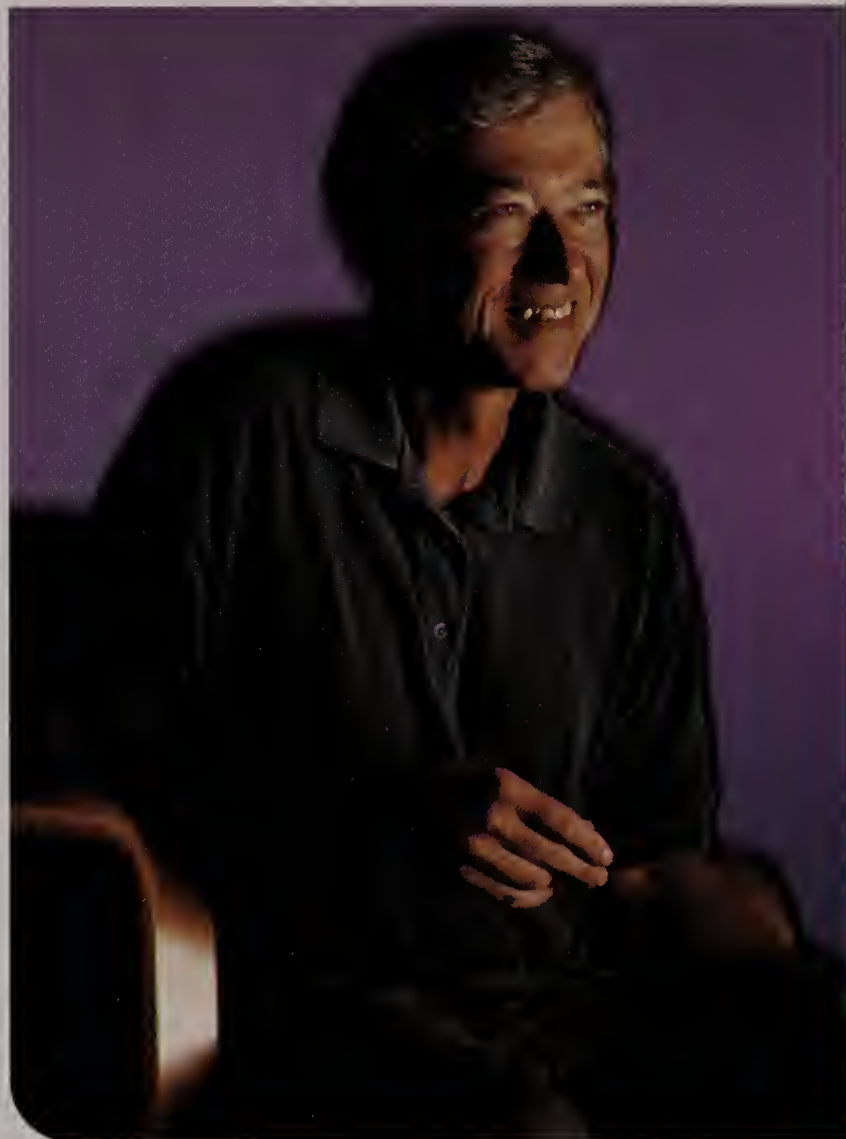
- ▶ The advantages of letting a grass-roots intranet organize itself
- ▶ What is gained and what is lost from centralized control of an intranet
- ▶ How an intranet can provide prompt and accurate information from employee surveys



## INTRANET INTROSPECTIVE

her four-person Web Implementation Team.

To find out why two big oil companies chose different approaches to similar projects—and to help readers decide which approach is best for them, we sat down with the people responsible. Here's what the two people in charge had to say about the governance of four key elements of their intranets.



suggest alternatives. That makes it possible for people to find what they need on the site quickly.

**Amoco:** We'd like to have a system where anyone can publish; that would lower the barriers that keep useful information from getting out. The lawyers might be happier to have

We ended up putting the legal notice up front, even though every employee might not see it as important.

—Gary McNitt

a tighter model, to ensure our safety from even frivolous lawsuits, but I think we'd be better off giving guidelines on privacy and having people broadcast information, since that would give the publishers more freedom. On our Web site, there's not just one way to find what you want; it takes some searching, some intuitive linking. The information is presented with a lot of context. If you want to find out about a certain kind of drilling, you'll see where it's being done, who's in charge of it and what its benefits and disadvantages are. That



way, you can come from a number of different angles. That's just the way things developed, but it's had its advantages. At a business unit level, a common look and feel was never forced, and we developed a natural way to construct our intranet. We all learned about each other, and we learned about Amoco's differences in different companies.

## Regulation

**He says** | Less is more  
**She says** | More is better

**Amoco:** The intranet effort here has been very grass-roots. We're trying to catch up and give it some structure, but right now we're like a regulatory agency, playing a managerial role in the intranet's development. As a consequence, we have less responsibility to dictate what people can put up, and they can post almost whatever they want. We don't dictate content at all; if it's not obscene or illegal, we'll let you put it up. Even so, we fight tooth and nail with users who think even the loose organizational structure we maintain is too stringent.

**Chevron:** We don't have a system of tight regulation—we're more like a welcome wagon than a regulatory agency—but we do guide the flow of information from one department to another, and if we see a connection that needs to be made, or if the same information shows up in two places on the site, it's our job to make adjustments or

**Chevron:** Our intranet has a business model for publishing, based on the model concept of physical construction. The general contractor and construction crew model provide one-stop shopping for employees to publish. One of our jobs on the intranet team is to identify resources that the "general contractor" (one role played by the team's Web Consultant member) would work with; then the general contractor meets with the content provider, finds out what he or she wants, and determines how our intranet can meet those requirements. It is that person's job to determine what needs to be done, what resources are available, what specific skill sets we have. The general contractor has access to employees with knowledge and expertise in legal issues,



document retention, information protection, corporate identity and copyright.

## Design Control

**He says** | Do it yourself  
**She says** | Do it our way

**Amoco:** We have a six-person Intranet Steering Committee that works with graphic designers to keep the intranet looking good. It's a volunteer group with no budget, and they report to no one. That gives a lot of autonomy to the business units.

For example, some business units have very complicated intranets that could present equally complicated design challenges. They put all sorts of information on there, from weather reports to bowling team scores. Some units also write their own software. Basically, the different business units can do as much with their intranets as they want. Design, to us, is not as important as making information available to people who might need it. If I want to find out about a particular venture, I will just go to the unit's site and navigate from there. IT isn't the owner of the content; we just provide the space for discussions. For us, it's like mini-storage. That makes people more responsible, and it also makes employees answer to management instead of making us responsible for enforcing a set of rules.

**Chevron:** When someone wants something new, first we look at the information he proposes to post, so we can see how it fits in with the rest of the information on the site. We force people to talk, or at least we encourage them not to publish in secret. Whatever is on your intranet is open to the rest of the company—all they have to do is search for it. That helps us make the right connections.

We guide design in a way that will help achieve our company's strategic goals, not just raise the information noise level. Metrics and strategies that CPDN wants to meet, like safety statistics and the cost of operations, are on our intranet, as well as links to information about the larger company's corporate goals and strategies. How we're doing relative to our targets are published on a month-to-month basis on the site, which is very helpful. The intranet is also a good place to post our plan for bringing ourselves into compliance with any new safety regulations—to tell why we need to comply with those standards. Normally for that kind of thing you'd have to call all over the company, but Web technology makes those processes a lot more interactive.

## Organization

**He says** | The intranet organizes itself  
**She says** | A place for everything, and everything in its place

**Amoco:** On an intranet, our mistakes get seen quicker. Our org chart is tied directly to an HR database.



Previously this database was visible only at an HR person's workstation. Now, certain parts of it (name, title, reporting relationships) show up on the company's intranet very quickly. We had instances where HR updated its database before the formal announcement, not realizing that, essentially, they were scooping themselves! That was embarrassing, an unforeseen fallout of our otherwise very useful employee database, but we've since found a way to avoid this happening. In general, the intranet raises the stakes in terms of accuracy and timeliness.

**Chevron:** This medium requires different ways to write and organize information than do paper-based methods. That is, the intranet, or even electronic communication, isn't a cure-all. Organization, planning and thought have just as much value in intranet site design, intranet publication and intranet publishing as they do in any other medium.

**Amoco:** When we installed browsers on employee desktops, about 20 percent of employees got authorization to access everything you can get through a browser: not just our intranet but also the external Web and Usenet newsgroups, which are full of great information but have a low signal-to-noise ratio. People were reading all sorts of offensive stuff, e-mailing it to friends and printing it out on our printers, and some business units had to block access to things. People complained about the problems that come from giving employees access to lots of information, but my response is that if you can't manage your employees, it's not my fault.



## INTRANET INTROSPECTIVE

**Chevron:** When we first created the formal team, I had no idea how many people were waiting for the opportunity to put things on the Web. I would have worked harder to maximize what we could have done quickly and cheaply. Resources sometimes feel limited, and people's demands were greater than what I expected. But we would have been just as stringent with the guidelines. We need better ways to locate information. We have lots of material, but it often is hard to think of a way to present it so that people can intuitively find it themselves. We're forming a Web Community (made up of anyone using the intranet) and a Web Council (a group of employees who'll help guide its development) and a Web Guidance Team (made up of senior-level managers). These three organizations will help guide the use and design of the intranet, and we'll work from here to involve people at every level and get more employee involvement.

## Feedback

**He says** | I'll deal with it  
when it comes

**She says** | My people are on  
the case

**Amoco:** We depend a great deal on user feedback and comments. Shared Services, the Amoco sector that houses IT, recently sent a survey over the Web because a vice president wanted to find out what was going well in his sector and what needed improvement. By having people fill out the surveys online using pop-up menus to give them choices, he was able to get survey results faster than he could have over interoffice mail or e-mail, and he didn't have to read any handwritten scribbles. The data from this survey was clean from the beginning and got entered straight into a database and analyzed. We probably got a higher response rate too, since it's easy to include more people when you do a survey electronically. We monitor our feedback



closely and try to be responsive to user needs, although it isn't always possible or desirable to accommodate them. For example, everyone wants to be on the first page of the site, and we can rarely satisfy their requests—there's just not enough real estate up there. Not long

## Petroleum Jelly

*What goes into the intranets of two big oil companies*

**Amoco's** INTRANET, AMOCOWEB, HAS grown from a grass-roots vehicle for self-expression to a crucial resource for every employee. Its central feature is a comprehensive employee directory and org chart application called Ask FRED (Friendly Reliable Efficient Directory) that lets the company's 30,000 employees in 350 locations around the world know where other employees can be found and who reports to whom. Another major feature of Amoco's site, "Bits and Bytes," introduces new people, makes sure everyone knows who is in charge of urgent issues like Amoco's year 2000 effort or major organizational changes, and even features a contest to see who can think of the best money-saving idea for the IT department. The intranet at Amoco is also the place to look for metrics on how the IT department is doing in terms of keeping the company's computers reliable and available. The intranet posts a schedule of training classes and other items of interest like "take your daughter to work" day or good prices on home computers.

**Chevron's** CPDN INTRANET CONNECTS 4,500 employees in eight major office centers, as well as dozens of remote locations. It posts its business plan, other mission statements, safety standards and OSHA requirements on the intranet. On paper, the business plan was so expensive and difficult to distribute that most employees never saw it, but now it's available to everyone, including other Chevron operating units. Chevron employees can see how a single function at the company fits into the corporate mission. Employees can read safety manuals on the Web and register the fact that they've read them in order to fulfill safety requirements. CPDN workers can conduct their own online work area safety audit, answering questions like, Is the carpet in your office in good repair? They fill out a form, submit it to a database and then receive information on what problems they should fix and which ones the company will repair for them. The company stays up-to-date on its OSHA requirements, and employees stay safe and satisfied. Special events, like company picnics and "bring your sons to work" day, can be noted on the company calendar and advertised electronically on the Net. This year, employees used the intranet to sign up for activities and to post digital photos of themselves and their children.

—R. Greenberg



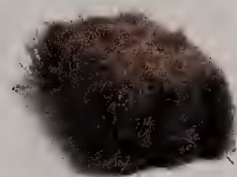


# You wouldn't raise a sheep if you needed a sweater.

So why are you building

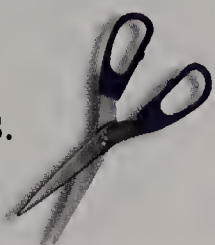
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We guide the flow of information, and if we see the same information in two places, we suggest alternatives.

—Joni Johnson



ago, the lawyers thought we should put some information on the first page about corporate security. The steering committee wanted to nix that placement, but they got overruled. Now as soon as people go to the internal site, they see our legal notice, which has to do with Amoco's compliance with the law: how we're committed to antitrust, employee safety, corporate security and equal opportunity. We ended up putting the legal notice up front, even though every employee might not see it as important.

**Chevron:** The general contractor acts as point person and serves as a resource for every employee who wants to publish on the intranet. It's that person's job to listen to different departments and then try to determine how to meet the company's requirements on the Web. This model prevents duplication, provides links to other helpful data if available and also reduces extra effort on the user's part.

The general contractor can connect similar users or users with similar needs to each other. Employees have the final say in how they publish, but they're encouraged to review their information before it gets published. That way, we can ensure that our standards and guidelines are met, that the information is in compliance with information protection, copyright policies and procedures.



## Employee Acceptance

He says | They love it  
She says | They love it

**Amoco:** We didn't realize how eager everyone was to start using the intranet. Originally, we put a feedback button on the intranet; we knew we had to have one, but we didn't check it obsessively. We figured people with navigational problems or dead links would call up or get in contact another way. But one person went straight to the sector vice president after giving us an hour's response time. Now the steering committee reads the feedback and someone checks it out every minute and responds. A feedback button needs dedicated care and feeding.

**Chevron:** Awareness is important in helping employees understand the business value of anything new, and this is also true with the intranet. We worked out a whole awareness and behavior reinforcement program, but we've postponed it. People here don't hesitate to use the intranet; if anything, we have had more requests than we expected for intranet capability. **CIO**

Editorial Assistant Ruth Greenberg can be reached at [rgreenberg@cio.com](mailto:rgreenberg@cio.com).





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# How Bazaar

Industrial buyers in search of bargains are finding that an online bidding model can send prices plummeting. And sellers like it, too—sort of.

BY ART JAHNKE

**T**HE SEARCH FOR CIRCUIT BOARDS FOR THE UNITED Technologies Corp., a big electronics manufacturer, begins the way most supplier searches begin: by scouring lists of more than 2,500 factories in printed catalogs and electronic registries, and calling dozens of knowledgeable sources. At Pittsburgh-based FreeMarkets OnLine Inc., men and women with the primitive-sounding titles of “market maker” and “market making engineer” cull that list down to 1,000 factories, based on considerations like the plant location, and then whittle that

## Reader ROI

IN THIS STORY, READERS WILL LEARN

- Whether they could benefit from trying out a novel online bidding model for some kinds of corporate purchasing
- How Web technology can help both buyers and sellers at the same time
- Why the era of fixed pricing may be nearing its end



A photograph of two men, Glen Meakem and Sam Kinney, playing drums. They are positioned in front of a large, white, cylindrical rocket engine. The man on the left, Glen Meakem, is wearing a red shirt and is smiling. The man on the right, Sam Kinney, is wearing a dark blue shirt and glasses. They are both holding drumsticks and appear to be playing a set of drums that are partially visible in the foreground. The background is dark, and the lighting is focused on the men and the engine.

Glen Meakem (left) and  
Sam Kinney, cofounders of  
FreeMarkets OnLine Inc.:  
The proof is in the bidding.



## PURCHASING STRATEGIES

number down by about two-thirds after reading reports on production capability and listening to feedback from customers. After an extensive written survey, another cut takes the number down to 100, and these are examined with an eye toward their long-term business performance, processes and the capability of their management teams. The 50 most promising suppliers are invited to play a brand-new game that could win them a major new customer, and coincidentally, forever change the way they do business.

They are asked to participate in a three-hour competitive bidding roller derby in which they will have a chance to undercut their competitors to win a contract with a total value of \$24 million. Each supplier will see its competitors' bids on a computer monitor, but the competi-

couldn't have variable pricing. Once the Sears, Roebuck catalog hit and the railroads hit, somebody had to set prices. We are now at a point with technology where we can have an exchange of prices."

The strategy seems to be winning over adherents. While CEO Meakem won't say how much venture capital his 3-year-old company has burned through, he says the value of bids has mushroomed from \$4 million in 1995 to \$400 million projected for 1998. Revenues, he says, have grown from \$16,000 in 1995 to more than \$7 million projected for this year.

"FreeMarkets offers an excellent opportunity for large companies to save money," says Erica Rugullies, an industry analyst at Giga Information Group. "Companies have put projects out to bid for a long time, but

they have never made it interactive, so this pits the competition against one another in a way that hasn't [traditionally] been done. The buyer can just walk away with the savings."

Using Web technology for business-to-business e-commerce hardly existed four years ago, but today it is crowded with several business models, sliced and diced into different categories by

**Relative to the rest of the process, the bidding itself is over in a flash. But it's the fulcrum on which the business model turns, enabling a buyer to get the rock-bottom price from qualified suppliers.**

tors will not be identified. It is a strange invitation, and many sellers have a few reservations. Some wonder if joining in an online free-for-all will damage the relationships with customers that they have worked hard to establish. Others, who may not appreciate the depth of research that has been done, fear that the bidding process will devalue some elements of their competitive advantage, such as the quality and service that they offer. In the end, 20 suppliers decline, but 30 decide that there is more to gain than to lose. Ten of the suppliers are in North America, 10 are in Europe, and 10 are on the Pacific Rim. They are told that the electronic face-off will begin on January 22 at 8 a.m., Eastern Standard Time.

**F**REEMARKETS COFOUNDERS GLEN MEAKEM AND Sam Kinney hope that the bids will knock as much as 20 percent off the total estimated price of the contract—\$24 million. Meakem and Kinney, both former McKinsey & Co. consultants, have reason to be hopeful. In the past two years, their market makers have conducted more than 50 bidding events, and they claim to deliver an average savings of 17 percent to manufacturers such as United Technologies, General Motors, Procter & Gamble, Westinghouse and Whirlpool. FreeMarkets online bidding battles have shaved 20 percent off the traditional price of nuts, bolts and screws ordered by the Power Generation division of Westinghouse and have done the same for a big order for Frigidaire. With every deal, FreeMarkets makes money from both ends, taking a fee from the buyer and a sales commission from the seller.

"What we are doing," says Meakem, "is using technology to bring back the bazaar. For 100 years now you

different analysts. These commerce models fight for their share of a market that, according to Forrester Research Inc., will grow from \$8 billion today to \$327 billion in 2002. Some will win big, some will struggle through, and a few will join the ranks of Nets Inc., another Pittsburgh-born pioneer, which flamed out last year to the surprise of analysts who had touted its promise. (See "The Hole in Nets Inc.," *CIO* Section 2, Oct. 1, 1997.) Knowledgeable businesspeople in this city chafe at the memory of the local online procurement company that was hustled off to the tonier environs of Cambridge, Mass., by Jim Manzi, the former CEO of Lotus Development Corp. before it was acquired by IBM. And Meakem and Kinney are quick to point out the many differences between their company and Nets—starting with the chosen location.

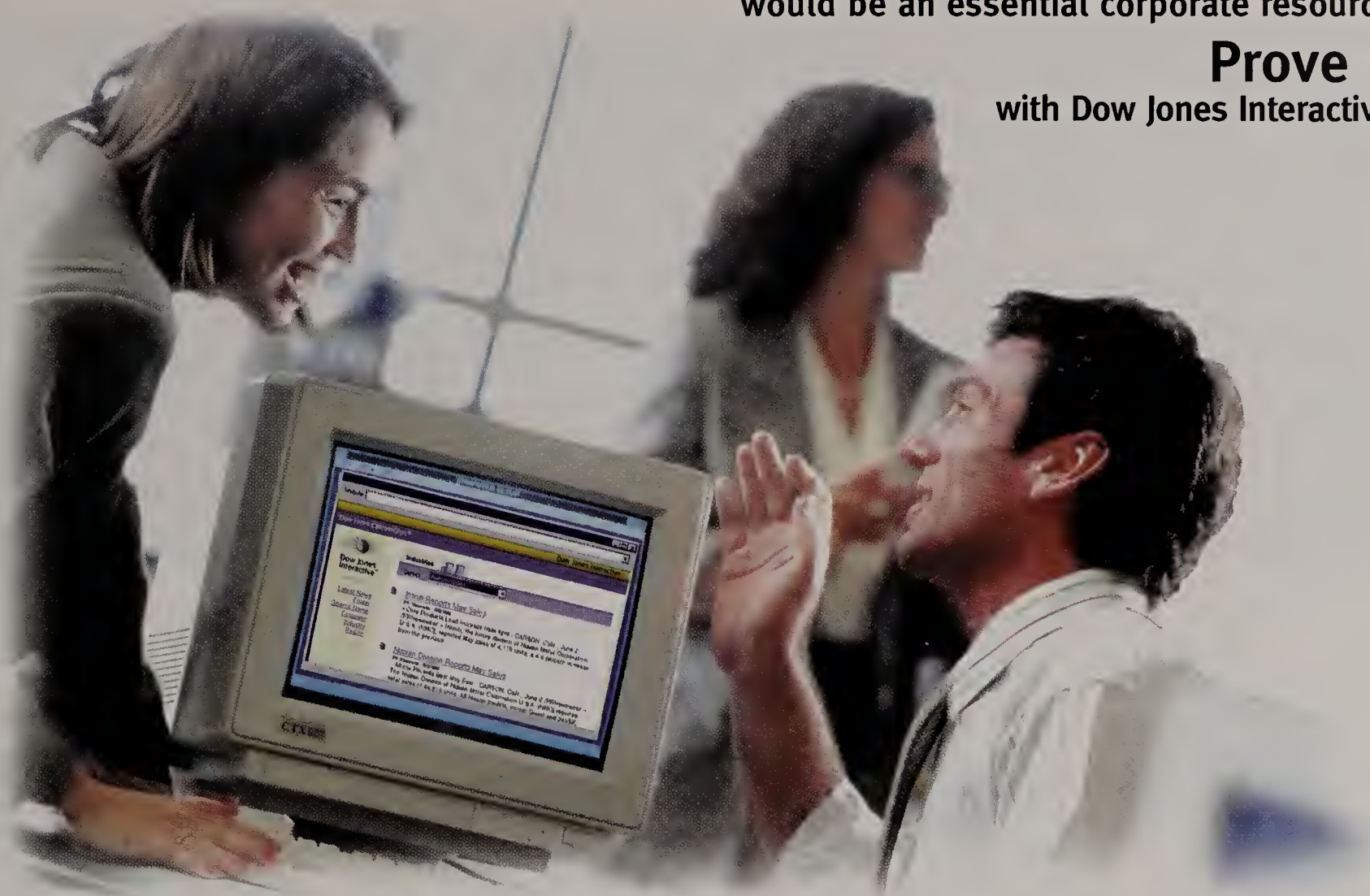
The pair of entrepreneurs could have pitched their tent in any city in the country, but they chose the city snubbed by Manzi. They did so for sound business reasons: Pittsburgh's technological talent pool was deep and relatively inexpensive; the airport was a well-run hub; and the Midwest address suited a business whose customers were, for the most part, large manufacturers.

And both Meakem and Kinney will eagerly explain how the two companies' business models were as different as their preferred residence. "What Nets did was say 'We'll build a Web page for you and it will be organized within our search engine,'" says Meakem. "The information they were publishing was Thomas Register stuff: name, address, serial number, plus the marketing information that the supplier was putting out. There was no attempt to analyze data and provide anything more,



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**"What we are doing is using technology to bring back the bazaar. For 100 years now you couldn't have variable pricing. Once the Sears, Roebuck catalog hit and the railroads hit, somebody had to set prices. We are now at a point with technology where we can have an exchange of prices."**

*—Glen Meakem*



primarily because they were serving suppliers. There was no objective analysis."

Not so with FreeMarkets, says Executive Vice President Kinney. The vast majority of its effort goes to vetting candidates for the bidding event. The actual bidding, conducted via a private IP network provided by CompuServe Network Services using FreeMarkets' proprietary BidWare and BidServer software, is over in a flash, but it's the fulcrum on which the business model turns, enabling a buyer to get the rock-bottom price from qualified suppliers. And when the final buzzer goes off, FreeMarkets' involvement doesn't end. It continues to help the buyer choose the best supplier, often counseling rejection of the lowest bid and recommending a supplier with better delivery systems or long-term potential.

FreeMarkets' bidding model, in which many suppliers bid against one another in real-time, is one of three online procurement models that Forrester Research has identified. The other two are the auction, where many buyers compete for the right to buy from one merchant, and the catalog, where Web technology connects one buyer and one seller. Forrester reports that the catalog model now accounts for 60 percent of the \$8 billion online business-to-business market and predicts that of the three models, the only one with enough promise to gain market share in the next five years is the bidding model.

John Spence, a vice president of marketing at CLP Chemicals, was more than willing to try it out as a seller. He had been wooing buyers at Quaker Oats Co., hoping to sell glycerine to the giant food merchant. "I had talked to people at Quaker a year before this happened and they said they were happy with the couple of suppliers they had," says Spence.

Understandably, Spence was pleased when he was called by FreeMarkets and told that Quaker was ready to put a glycerine contract up for bid.

"When you open it up with a bidding process it does level the playing field a bit," says Spence. "It takes out some of the advantage for the incumbent. It's good for the kind of supplier who is new and trying to get in and willing to be aggressive on pricing. It's not so good if

you're the incumbent. If...you keep the business, that's good, but every other outcome is bad."

Spence won the bid and when the auction was over, went home happy. At least for a while. Every three months, he knows, the bidding event will be repeated, and next time may include a supplier who is newer and hungrier than he is.

Buyers, of course, have less to lose. If a bidding event doesn't result in savings, the buyer is under no obligation to accept a bid. In fact, the prices quoted by sellers don't always live up to the expectations of FreeMarkets experts. Jack Porter, a manager of central purchasing direct at Caterpillar, says FreeMarkets believed it could save his company 20 percent on a \$4 million order for fittings. When the bids came in, the savings was closer to 10 percent, says Porter. Still, he likes the business model enough to use FreeMarkets again, although not for just any commodity.

"This concept only applies in those areas where there is a great deal of capacity," says Porter. "And it only applies to nonstrategic materials—off-the-shelf items versus engineered items."

Porter's sentiment is one that Kinney and Meakem are trying hard to change. They say that at the same time that FreeMarkets' market makers are lining up factories with the capability to fill orders, the company's researchers help the buyer write and organize a request for quotation (RFQ) for parts that often must be custom-made to meet a manufacturer's specifications. And even though many FreeMarkets customers have been buying the same supplies for years, FreeMarkets advisers often arrange the requests in new, more efficient ways.

"What we do," says Meakem, "is help people make decisions by providing three things: sourcing and consulting, an electronic commerce market system and information about the [industrial] supply industries. It's the three things together that make us unique. Nobody does those three things. Consulting firms have sourcing and consulting, but even top firms are extremely weak when it comes to assembling information about supply industries."



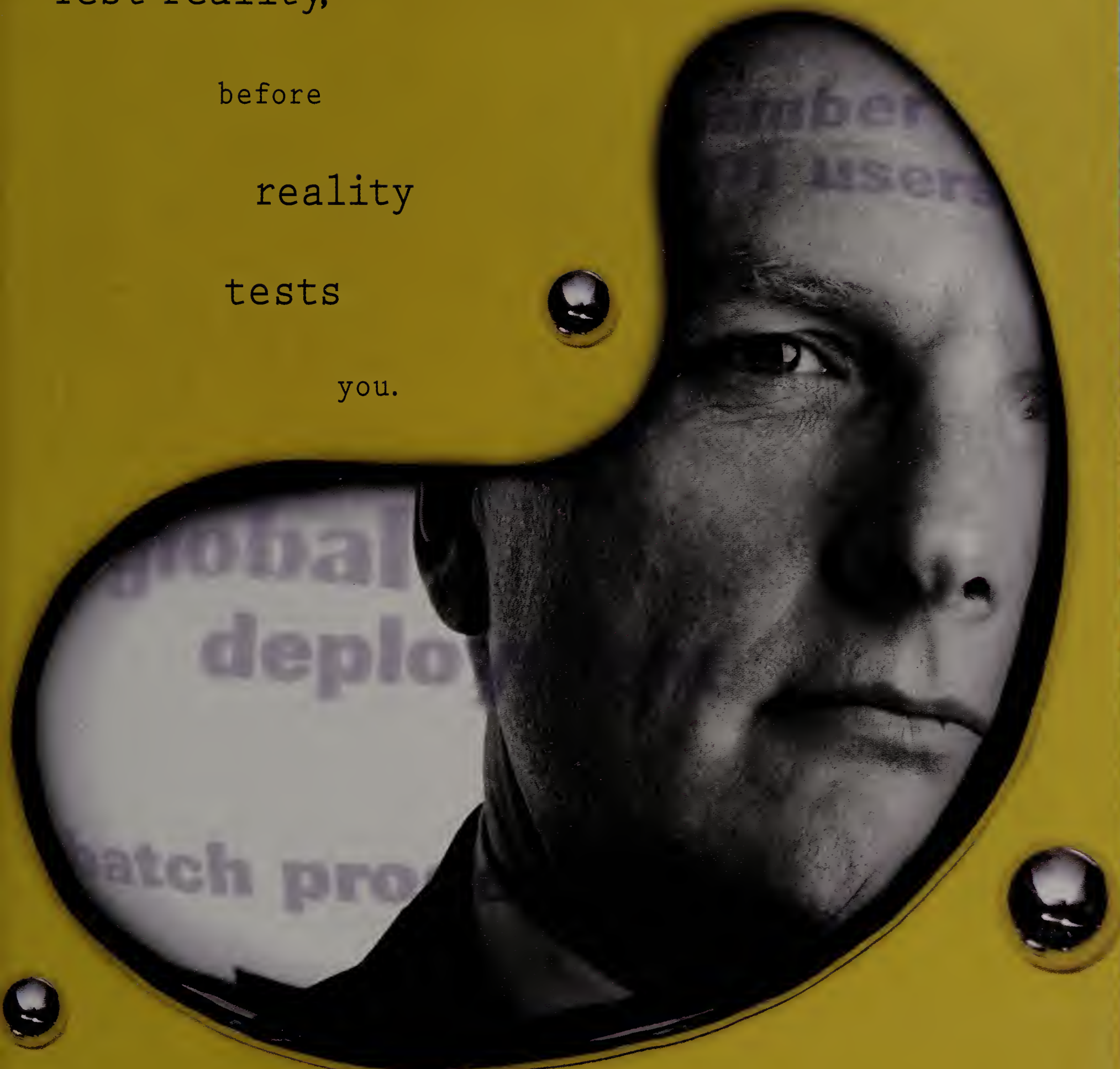
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## The Push and Pull of Commerce

*It's the choice of business model that determines who holds the most cards*

**F**REEMARKETS COFOUNDERS SAM KINNEY AND GLEN Meakem see business-to-business e-commerce as an unfinished work, but one that can conveniently be subdivided into two camps: supplier-push and buyer-pull. Supplier-push describes businesses that make things the way they want to make them, usually in great numbers, and put them up for sale. Online, they are represented by sellers' catalogs listing products available in limited styles and for prices that are nonnegotiable. The sellers hold the cards.

In the buyer-pull model, the balance of power shifts, says Kinney, so that the buyer calls the shots—either because he is more powerful than the seller or because the desired product must be made to the buyer's specifications. Online, that model can be seen in a spate of new software products (Ariba from Ariba Technologies Inc., Connect Inc.'s PurchaseStream and CommerceOne's various applications) that allow large companies to build their own buying catalogs, linking in-house purchasers to vendors who have negotiated sales agreements that theoretically offer the buyer the best deal in town. Those systems usually purchase supplies that are not ordered by an MRP system.

FreeMarkets differs from either of the models above, seeking and vetting qualified suppliers, and staging an online bidding event that begins and ends within a prescheduled window.

—A. Jahnke

So far, FreeMarkets has concentrated on dealing with suppliers of heavy industrial products. They have, for example, found suppliers of such things as plastic shelves for refrigerators, metal components for air conditioners and chemicals for sunscreens. Because many of the supplies must be custom-made, ordering them requires detailed knowledge of the manufacturing process.

"That's part of our positioning," says Meakem. "It's very hard to do what we do because in our market—custom-engineered machine parts, metal stamping, plastic injection molding and custom electronic components—you not only need excellent technological skills, you need an equally deep knowledge of machining. You really need a blend of these eclectic skills. This is not the kind of business you can do from Manhattan or Greenwich, Connecticut."

If an RFQ contains more than one component, FreeMarkets may subdivide it into job lots and ask dif-

ferent factories to bid on different lots. Conversely, FreeMarkets may recommend the consolidation of orders for the same commodity from different plants of a single large company.

The RFQs, when complete, may be several hundred pages long and include dozens of schematic drawings. They are shipped out to those suppliers who have survived vetting and are willing to play.

**I**T IS 8 A.M. IN PITTSBURGH ON JANUARY 22, AND the two-person operations team is making final preparations for the competitive bidding event that will award contracts for \$24 million worth of circuit boards. In Europe, where 10 suppliers huddle around computer screens in their executive offices, it is midafternoon. In Asia, where 10 more factories are ready to begin bidding, it is late in the evening. Glen Meakem and a FreeMarkets market maker are standing beside a group of key United Technologies buyers in a corporate office in the western United States. To make the bidding process easier to follow, they have decided to project the computer image onto a large screen.

For logistical and tactical reasons, FreeMarkets market makers have divided the order into 12 lots, with each one coming up to bid separately. At 8 o'clock sharp, the first lot, valued at \$2.25 million, is put on the electronic block. The opening bid arrives almost immediately, at 8:02. A supplier is offering to provide the goods at the "book value" price of \$2.25 million. Within minutes, four other bids follow, all of them at or around \$2 million. The 10 percent drop appears to break the ice, and within one minute a breakaway supplier comes in at \$1.5 million.

Apparently stunned, the other bidders are silent for five long minutes. Eventually, at 8:10, a bid arrives, offering to do the deal for \$1.35 million. Twenty minutes pass, and the observers in FreeMarkets' Pittsburgh office wonder if that bid will end the contest. Then at 8:30, 15 minutes before bidding on this lot is scheduled to close, another bid drops. It is \$1.25 million. As the clock ticks, the bids trickle, then stream. In the final 15 minutes, 42 bids appear on the computer screen, each one dropping the price incrementally. When the bidding on this lot ends, the lowest price is \$1.1 million.

Over the next three hours, the process repeats 12 times as each lot goes up for bid. The lowest bidders are different for different lots and represent factories all over the world. When it ends, the total price for the circuit boards is about \$18 million, roughly 35 percent less than the book price of \$24 million. In the buyer's corporate headquarters, there is congratulations for Glen Meakem. In Pittsburgh, there is cheering. FreeMarkets' market makers are pleased but not ready to celebrate. They know that months of work lie ahead before the deal can be finalized and before FreeMarkets collects its fee for service. **CIO**

Senior Editor Art Jahnke can be reached via e-mail at [ajahnke@cio.com](mailto:ajahnke@cio.com).

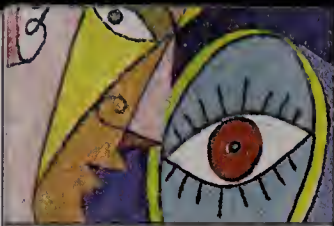


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# Tune-Up Time

*You know when your server is serving pages, but do you know if your Web site is serving the company? If not, it's time to find out.*

BY JIM STERNE

**Y**OU'VE WORKED HARD ON YOUR WEB SITE. DOES YOUR Web site work equally as hard for you and your company?

Sure, the site churns out pages and it registers e-mail addresses for the company newsletter like there's no tomorrow. Streaming video, RealAudio, QuickTime movies—all the niftiest multimedia technologies work like charms.

But what about the business value of the site?

A Web site may have no technical glitches, but that's not to say it works well for your customers. And in the final analysis, how well a Web site works for your customers has everything to do with how much value it adds to your company.

Back when you begged senior executives for money and resources to build and maintain a Web site, perhaps you wrote a compelling brief about the wonders of the Web. The executives liked what they heard, particularly the bit about dovetailing the power of a Web site with the latest corporate strategic direction to open new markets and create new services. Since then, you've discovered a hundred and one new things your site can do such as expanding your brand or facilitating electronic commerce. But are they the right things?

If opening new markets and creating new services is not in keeping with the board's current desire to consolidate operations and cut costs, it's time to reassess the purpose of the Web site.

The goals of the corporation and those of the Web site have to head in the same direction. Once they do, it's time to figure out tactics. The first question to ask is, Are your Web projects as good for your customers as they are for management?

For example, suppose your corporate mandate calls for reducing costs by 20 percent. You offer self-service order applications on your Web site, and in doing so, decrease overhead and inventory costs by the desired amount. In the process, you slice the number of available product options by one-third. Turns out, your customers want both efficient service and selection. It's your job to provide customers with Web services they want while delivering the company goals.

Yet it's essential to remember that your Web site is an electronic representation of your company, but it's not *for* your company. It's for your customers,



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prospects, investors and business partners. When it's time to reevaluate the Web site in light of changing corporate goals, ask your constituents what they want from your Web site. The feedback button on your site should always include a "How Are We Doing?" survey, but don't stop there.

Reach out to people who don't have time for surveys. Offer your reticent customers enough incentive so that they will answer a quick question or two via e-mail. A token gift or a coupon good for 5 percent off their next purchase may do the trick. If that doesn't sway them, send them nice letters and find out what you might offer them that would make it worth their while to chime in.

When customers send e-mail to you, track what's on their minds. This can be done fairly easily by categorizing incoming mail into positive and negative "piles," and reviewing them for common, underlying themes. Take a look at the server logs and see which frequently asked questions they read most. Is it a question about the return policy? Then clarify the policy and post it (or a link to it) prominently on the order page.

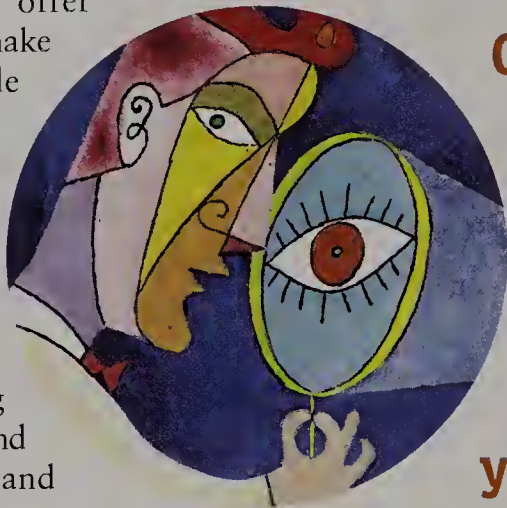
Another vehicle for gauging customer perceptions is facilitating an electronic discussion via an e-mail list or password-protected area on the Web site. Get your top 10 customers in an electronic round robin and let them hold forth about the value and performance of your site. They'll come up with ideas your Web team would never have thought of and will offer suggestions for services they can't find anywhere else.

It's important to analyze site navigation. Do people seem to know where they're going and how to get there? Or do they wander from page to page? Determine which information most visitors are after and put a link to that information on your home page. For example, if 9 out of 10 visitors wend through five pages of marketing information to get to the product catalog, create a link to the product catalog from the home page.

Printing pages is also a form of Web

navigation. If you don't have guidelines designed to ensure printability, it's time to write some. If you have guidelines, are your content creators following them? Print a random sample of pages and check. Few things are more annoying to a customer than printing out a Web page only to discover that the text runs off the page along the right-hand margin.

Once you've heard from customers and collected their ideas, direct your attention to how well the company as a whole is tuned in to what's happening—or what should be happening—on the Web site. Do the managers who run your company always think of the Web as



## Get your top 10 customers in an electronic round robin and let them hold forth about the value and performance of your site.

one of the arrows in their quiver? If not, there's an opportunity for you to educate management about what the Web can do for the company.

The job of educating can fall under your responsibilities as resident "Web crusader." In this capacity, continuously inform the rest of the company about the value received from successful Web projects. Write a column in the company newsletter. Host a Web Day Open House and serve lunch. Spread the word.

At the same time, your job is to keep things well in hand. Sometimes an inspired manager will look at the Web as an all-purpose solution to every problem. Keep in mind that you can't do everything at once and expect to maintain coordination, organization and direction; achieving common corporate goals requires an ability to set priorities and assign resources to the most appropriate projects.

Of course, you can help to set priorities by seeing what other companies are doing on the Web. Remember when you did that competitive analysis way back when? Remember that great matrix you

created that showed all of the features your competitive sites had?

If you updated that more than one quarter ago, it's time to do it again. On the Web, technologies—and strategies—change fast.

In conjunction with competitive analysis, you should hold a brainstorming session. Get your company stakeholders in a room and make them check their cell phones at the door. Keep the session lighthearted, and encourage attendees to roam. It's an opportunity for tossing out wild ideas and flights of fancy; winnow the wheat from the chaff later when it's time to actually select which ideas will be funded and implemented.

Your final task is to scrutinize how those ideas get implemented. Are your rules and regulations still appropriate? This issue is particularly important if your company's Web efforts—and the number of people involved in them—has increased significantly. If you

wrote initial policy documents when the Web site was first proposed, it's time to evaluate whether they still do the job. For example, marketing may have pioneered the Web at your company. If so, the existing guidelines may apply only to marketing collateral. Do the guidelines fit for all the different kinds of content—ranging from press releases to job postings to product catalogs—now on the site?

If they don't, you need to write new policies that clearly define the corporate code of conduct. Ask yourself a series of questions including the following: Are the right people responsible for the right things? What's the process for approving projects like? Who owns the content? Who evaluates and selects the technology?

It used to be that IS departments wrote a five-year plan every year. Now IS writes a one-year plan every six months. Things change fast on the Web, so it's necessary to get in the habit of reviewing your business progress on a periodic basis. **CIO**

*Jim Sterne is author of What Makes People Click: Advertising on the Web. He can be reached at [jsterne@targeting.com](mailto:jsterne@targeting.com).*





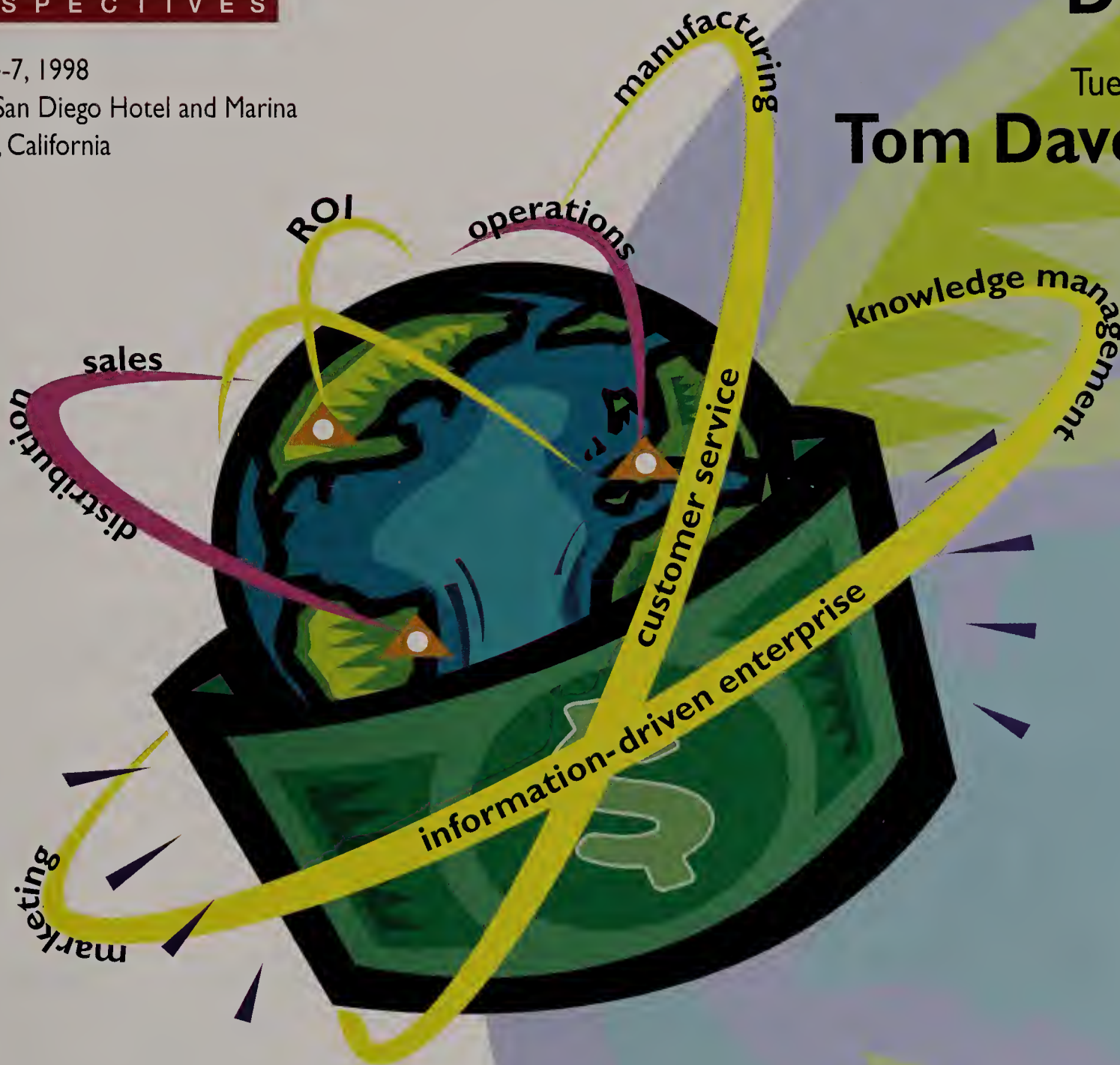
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# POWER SOURCE

## Just the (Digital) Fax

*Contrary to conventional wisdom, e-mail didn't kill the fax. In fact, many companies use digital technologies to support and enhance their faxing capabilities.*

BY FRED HAPGOOD

**A** COMMON IF PERVERSE TWIST IN THE STORY OF technological progress is how new products or services often end up increasing demand for the very items they were supposed to replace. Personal computers spiked the market for paper; many believe videoconferencing has increased the appetite for air travel because the technology catalyzes deals that eventually have to be sealed with a trip; and the networked environments built to handle e-mail are turning out to be perfect for fax.

Ten years ago the consensus among network proponents was that e-mail was going to gobble up fax technology in a few years at most. Instead, according to Maury Kauffman, fax guru and managing partner of The Kauffman Group Inc., a consultancy in Cherry Hill, N.J., 30 to 40 percent of a company's telecommunications bill is for fax transmissions. At the average Fortune 500 company, about \$15 million annually is spent on fax communications, he says, with traffic increasing at more than 20 percent a year. In 1997, 124 billion fax pages were transmitted in the United States, up 12.7 percent over 1996, according to the "Fax Traffic Report" published by market researcher International Data Corp. (IDC) of Framingham, Mass. (a sister company to CIO Communications Inc.). In 1998, IDC projects an annual transmission increase of 12.9 percent, to 140 billion fax pages. Worldwide, 100 million fax machines will

be installed by the end of 1998, according to the IDC report.

It's easy to see why fax technology has grown in popularity. The faxing procedure preserves the physical look of a document, including signatures, written annotations and form layouts. The fax interface is also simple and is internationally standardized. Arrival confirmation of a fax is straightforward, unlike an e-mail message that can wander around cyberspace for days while the sender may be unsure about its arrival at its destination.

As it has become obvious that the fax is not going away, companies have started to use digital technologies to support and extend fax capabilities. One example is the growing interest in moving a company's fax traffic from the Public Switched Telephone Network (PSTN) onto packet-routed networks, including corporate LANs, private long-distance networks and the Internet.

For instance, suppose Alice in

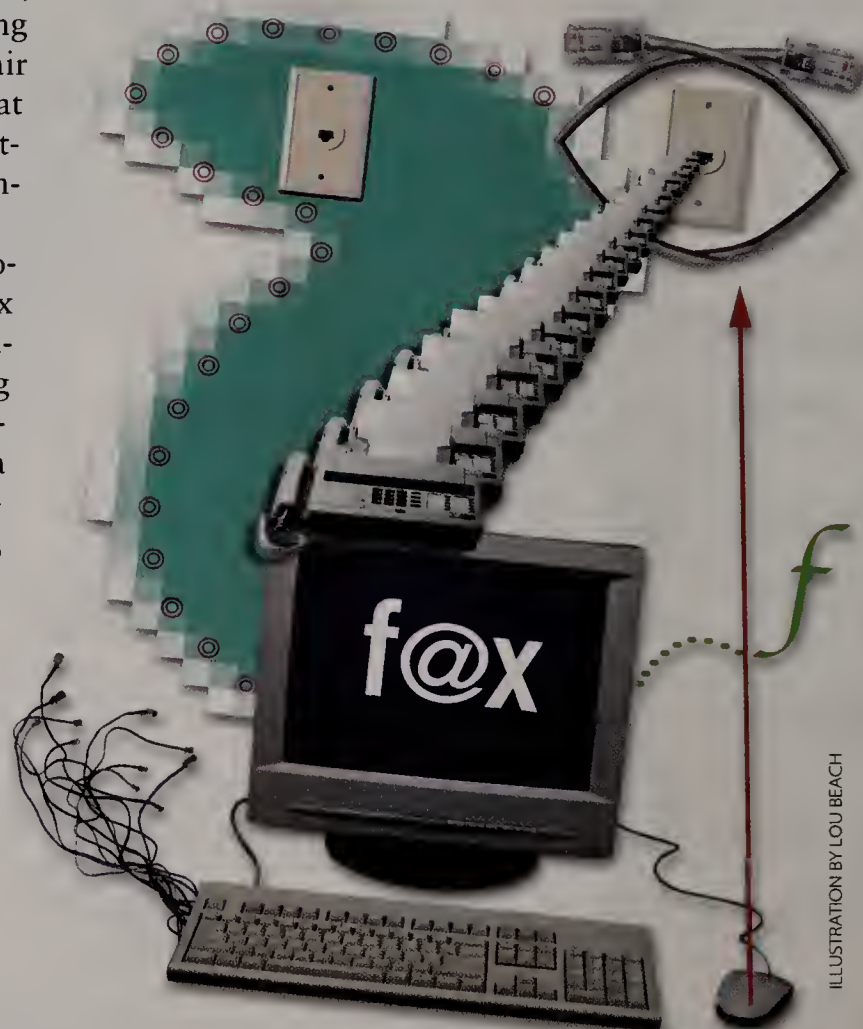


ILLUSTRATION BY LOU BEACH

Desktop with  
a View  
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Rapid Response  
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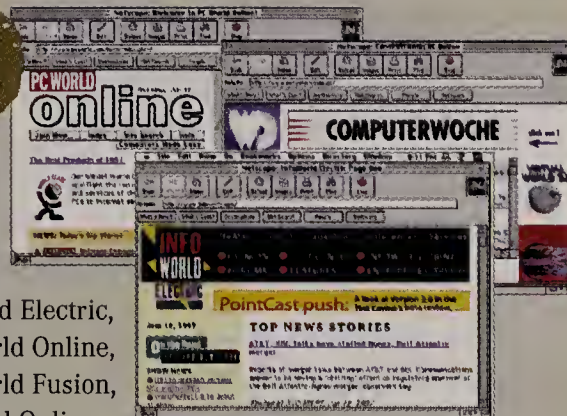
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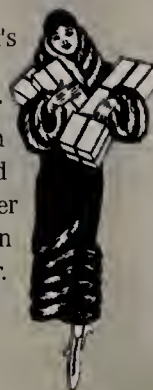
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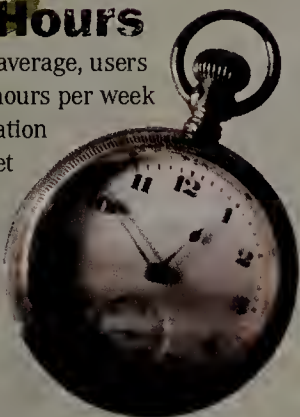
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London wants to send a fax to Bob in Sydney. Historically, Alice would have done this by buying a switched connection from an international telecom carrier. Today Alice has the alternative of routing Bob's fax from her desktop to an Internet faxing service or bureau. The routing might go via the PSTN, the Internet or a combination of the two. The bureau translates the tones into packets and sends it over the Internet to a partnering fax bureau in Sydney. The partner picks up the fax, translates it back into faxtone, dials into the local system and sends it over the last mile to Bob's machine. The fax has traveled around the world for the cost of two local phone calls plus the bureau's fees, which usually work out to about 10 cents a page. "Over the next 10 years, a huge percentage of all the faxing done in the world is going to move to the Internet, saving organizations billions of dollars," Kauffman says.

Internet faxing services are sold by many vendors, including telecommunications companies such as GTE (GTE's DestinationFAX at [www.gte-fax.com](http://www.gte-fax.com)), Internet service providers such as PSINet Inc. in Herndon, Va. (PSI's InternetPaper at [www.psi.net/internet/ipaper](http://www.psi.net/internet/ipaper)), and specialty bureaus such as FaxSav International in Edison, N.J. ([www.faxsav.com](http://www.faxsav.com)) and .comfax Inc. in New York City ([www.comfax.com](http://www.comfax.com)).

Each vendor has a slightly different operating procedure. For example, in the case of .comfax, customers attach a proprietary device to their fax machines that costs about \$350. This device converts the fax into packets and intercepts the routing information—the phone number and area code—entered into the fax machine. (Faxers sending from desktop PCs get software that performs the same function.) The local server sends this data over the Internet to another more central .comfax server, which compiles the calling records and makes them accessible on the .comfax Web site. The central server also "looks" for another server in the terminating city. About 75 percent of the time, a partner is found to dial a call into the local phone network. If a partner is not found, .comfax completes the call the old-fashioned way, making and paying for a long-distance call over the PSTN.

Internet faxing opens a universe of server-side fax-handling features such as encryption, bulk or broadcast faxing, authentication, fax storage for later retrieval and enhanced calling records. It also saves handsomely over international

## VIDEOCONFERENCING

. . . . .

## Desktop with a View

*A new standard delivers videoconferencing via the Internet*

**V**IDEOCONFERENCING HAS come of age. Once beset by high costs, spotty transmission quality and unwieldingly large "room-based" systems, videoconferencing technology is making its

([www.picturetel.com](http://www.picturetel.com)) Live-LAN, VideoServer Inc.'s ([www.videoserver.com](http://www.videoserver.com)) Series 2000 Multimedia Conference Server and Intel Corp.'s ([www.intel.com](http://www.intel.com)) Business Video Conferencing. Video cameras are required on the server side, but clients can receive video without a camera hookup.

H.323-based conferencing offers a significant improvement over the previous H.320 standard, which is based on ISDN (integrated services digital network) technology. The H.323 standard, which is hardware- and software-independent, supports conferencing among multiple points, using various kinds of clients. (VideoServer, for example, can accommodate as many as 48 conference participants, each at different locations.) The H.320 standard supports only point-to-point communications, and ISDN-based networks are not as prevalent as LANs.

As more vendors introduce H.323-based products, desktop videoconferencing could become as common as e-mail. When that day arrives, corporations will use the technology to create new ways of doing business that go beyond holding meetings and facilitating remote training. Some companies are already moving in that direction: According to Intel's Web site, Chase Manhattan Bank has piloted the use of videoconferencing technology for an interactive banking application that allows customers to speak "face-to-face" with service representatives.

—Lee Weiner



way to the desktop thanks to a new and emerging standard called H.323. The H.323 standard—which supports multipoint conferencing and the seamless integration of audio, data and video—delivers high-quality conferencing over the Web or corporate intranets. With videoconferencing capable of running on IP networks, the technology may soon become a staple on corporate LANs and intranets.

As with any IP-based technology, desktop videoconferencing requires a client and server. (Clients can vary from a PC to a Macintosh, even a telephone for multipoint audioconferencing.) The good news is that any organization with an existing LAN already has the necessary infrastructure for videoconferencing. Some of the H.323-compliant videoconferencing products available include Microsoft Corp.'s ([www.microsoft.com](http://www.microsoft.com)) NetMeeting, PictureTel Corp.'s



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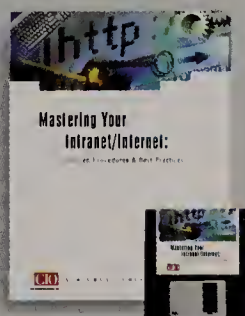
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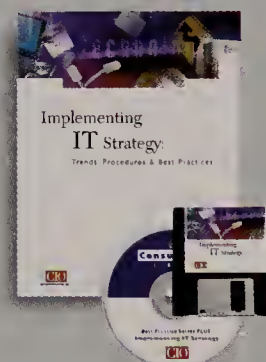


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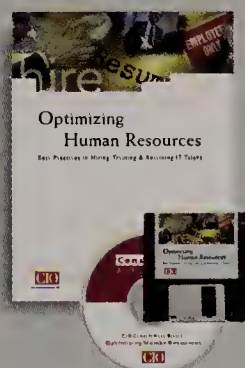


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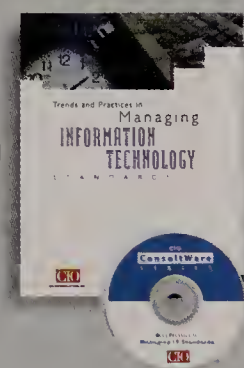


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rates (domestically, Internet faxing service charges come out about the same as PSTN fax calls), and on telecom resources like phone lines and fax machines.

American Design Components Inc., an Allendale, N.J.-based company that buys and sells computer parts, uses .comfax to do fax broadcasting. "It's common for us to send thousands of faxes at a time," says President Allan Berkun. "I used to have eight machines connected to eight phone lines, which I would leave running all night. Even that wasn't enough, especially when you came in in the morning and discovered that something had broken. Now one fax service describing the products I have for sale goes out at 6:30 a.m., and when I get in at 10 a.m., orders are waiting."

**"Over the next 10 years, a huge percentage of all the faxing done in the world is going to move to the Internet, saving organizations billions of dollars."**

—Maury Kauffman

The most ambitious integration of fax with the digital world comes in abandoning the physical machines and faxing right from the desktop. (One argument in favor of this approach: Standing around doing manual faxing is a major waste of time.) Desktop faxing can be done through modems or fax boards installed on the individual PC or through a fax server sitting on the corporate LAN. Brooktrout Technology Inc. ([www.brooktrout.com](http://www.brooktrout.com)) of Needham, Mass., and Dialogic Corp. ([www.dialogic.com](http://www.dialogic.com)) of Parsippany, N.J., make a wide range of fax boards. Some very large systems use both LAN servers and desktop cards.

Servers provide a central point from which to distribute such fax-handling services as account management, backups, broadcasting, archiving, load balancing and least-cost routing. Servers also provide project mailboxes where faxes relevant to all the members of a given project are received, organized and archived. The servers can be integrated with other objects on a LAN, including hardware like scanners and printers and applications such as e-mail, spreadsheets and databases. As if that's not enough, servers can act as Internet gateways or as connections to gateway bureaus, allowing the transfer of calls back and forth between the Internet and PSTN. Faxes sent to servers are always received; there is never an issue of a machine being turned off, broken, out of paper or busy. Faxes just go to the server where they sit until their recipients—who are notified when a fax arrives for them—are ready to retrieve them. Fax server vendors include RightFAX Inc. ([www.rightfax.com](http://www.rightfax.com)) of Tucson, Ariz., Optus Software Inc. ([www.facsys.com](http://www.facsys.com)) of Somerset, N.J., and OpenPort Technology Inc. ([www.openport.com/html/index.html](http://www.openport.com/html/index.html)) of Chicago.

To complicate matters somewhat, fax servers cannot simply be plugged in and turned on as fax machines can. Richard F. Grove, a senior systems solution provider at

## BROWSER

### Rapid Response

If there's one thing that irritates users more than waiting for a Web page to download, it's waiting even longer for a response to an online query once that page is loaded. Binary Evolution Inc. in Rancho Santa Fe, Calif., has introduced VelociGen, a server plug-in designed to speed response times of online applications used in electronic commerce and dynamic content publishing. VelociGen is particularly useful for businesses with large commercial Web sites or intranets that process thousands of queries per hour. By integrating the Web server with databases using the scripting languages Perl and TCL (instead of CGI scripts and APIs), VelociGen reduces response delays as well as the potential for bugs to crash a Web server.

VelociGen can be installed on Unix and Microsoft NT servers and integrates with database engines via standard protocols.

A developer license for each Web host regardless of the number of servers running costs from \$999 to \$4,999.

For more information, visit [www.binevolve.com](http://www.binevolve.com) or call 619 481-7438.



### Relationship Manager

Everyone wants to build a Web site that keeps visitors coming back, and there's no better way to earn repeat traffic than to establish relationships among customers. Vignette Corp. in Austin, Texas, says the latest version of its StoryServer software allows companies to manage Web customer relationships as they evolve, from the first time people visit a Web site until they become regulars. StoryServer 4 adds personalization, profiling and reporting features to the product's content management capabilities. A developer's license for StoryServer 4 starts at \$25,000; the average cost to roll out the system ranges from \$50,000 to \$100,000. For more information, contact Vignette at 512 502-0223, or visit [www.vignette.com](http://www.vignette.com).



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Chevron Information Technology Co. (CITC) in San Ramon, Calif., points out that the increased options available with fax servers raise the complexity and costs of management all along the process, from cost-justification to installation, training and support. Grove believes that costs are best controlled by keeping management of the system as close to the field as possible. That way, companies can tailor solutions to the needs of local offices and projects.

"I'm a skeptic of enterprisewide solutions for this application," Grove says. "For instance, enterprise solutions tend to associate faxes with one person. This isolates the pool of faxes from the project group. Departmental solutions make it easier to give general access to the pool both to team members and managers. Managers often like to track fax transmission and receipt activity on a project level, since projects that generate a lot of noise might be in trouble."

Another area where an enterprise solution may not work is with address information. "Individuals tend to be sloppy about maintaining their own address books," Grove says. "Under departmental solutions, projects often have group address books, and people tend to be more careful about adding entries when they know that other team members will benefit."

That caveat aside, Grove is nevertheless a believer in the technology. "CITC provides information systems support to Chevron projects all around the globe," he says. "We live or die by fax." For months, faxes were kept stacked in cartons piled around offices. Grove used to carry a photo of the staff digging through a mountain of faxes and ask others within

Chevron, "Is this how we want to do our information management?"

About three years ago, CITC installed FACSys-FH, a fax server system from Optus Software. "That solution has worked for us," Grove says, "but I think the key point was that we started on a local level, with only 75 users."

The move to digital faxing portends a more significant development: Internet protocol convergence. When IP converges, everything—

audio, video, telephony, fax and data—will run on a single river of packets, crossing in and out of the Internet as needed. One of the added benefits of digital faxing could be to introduce companies to several of the training, evaluation and cost justification issues inherent in this larger transition. For example, Internet telephony may also require gateways and service bureaus, and may raise integration issues with legacy hardware. Digital faxing may be a controlled warm-up to the big jump coming: the day organizations go totally digital. **CIO**

*Fred Hapgood is a Boston-based technology writer. He can be reached at hapgood@pobox.com.*

## BROWSER

### The Popular Click

**P**oint, click and publish. Because Interactive Connection believes updating public Web sites and intranets should be that simple, the New York City-based company offers clients a continuous stream of content along with easy-to-use tools for customizing and publishing. At the heart of the service is



Interactive Connection's Content Engine, which aggregates content from a variety of feeds, filtering and distributing it to clients based on their custom profiles. The content, which comes from hundreds of news, sports, business and entertainment sources, can include audio, video and graphics in addition to text. Products that clients can use to manage and disseminate incoming content include

- Interactive MiniServer, which instantly pushes Content Engine feeds onto the client's Web site
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Page numbers refer to the first page of the article(s) in which the company is mentioned. This index is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

### Company Index

|                                                                         |        |
|-------------------------------------------------------------------------|--------|
| 3Com Corp.                                                              | 20     |
| American Design Components Inc.                                         | 62     |
| American Oncology Resources Inc.                                        | 10     |
| Amoco Corp.                                                             | 42     |
| Apple Computer Inc.                                                     | 22     |
| Ariba Technologies Inc.                                                 | 50     |
| AT&T                                                                    | 32     |
| Backroads                                                               | 22     |
| Beednet Group, The                                                      | 32     |
| Bernard C. Harris Publishing Co. Inc.                                   | 20     |
| Binary Evolution Inc.                                                   | 62     |
| Black Bean Studios                                                      | 22     |
| Bristol-Myers Squibb Co.                                                | 28     |
| British Telecom                                                         | 32     |
| Brooktrout Technology Inc.                                              | 62     |
| c2o Interactive Architects                                              | 22     |
| Camelot Music Inc.                                                      | 22     |
| Caterpillar                                                             | 50     |
| CheckPoint Software Technologies Ltd.                                   | 20     |
| Chevron Information Technology Co.                                      | 62     |
| Chevron USA Production Co.                                              | 42     |
| CLP Chemicals                                                           | 50     |
| .comfax Inc.                                                            | 62     |
| CommerceOne                                                             | 50     |
| CompuServe Network Services                                             | 50     |
| Connect Inc.                                                            | 50     |
| Crime Show                                                              | 10     |
| Dialogic Corp.                                                          | 62     |
| Digital Equipment Corp.                                                 | 22     |
| eMarketer                                                               | 10     |
| eToys Inc.                                                              | 22     |
| FaxSav International                                                    | 62     |
| Federal Express Corp.                                                   | 22     |
| Forrester Research Inc.                                                 | 20, 22 |
| FreeMarkets OnLine Inc.                                                 | 10, 50 |
| Frigidaire                                                              | 50     |
| Fuld & Co.                                                              | 28     |
| General Motors                                                          | 50     |
| GeoCities                                                               | 20     |
| Gillette                                                                | 28     |
| GTE                                                                     | 62     |
| Heifer Project Intl.                                                    | 10     |
| Hurwitz Group, The                                                      | 32     |
| IBM Corp.                                                               | 50     |
| Intel Corp.                                                             | 62     |
| Intellicast                                                             | 22     |
| IntelliGenesis Corp.                                                    | 10     |
| Interactive Connection                                                  | 62     |
| International Telecommunications Satellite Organization (IntelSat), The | 32     |
| IntraNetics Inc.                                                        | 22     |
| K2 Design Inc.                                                          | 22     |
| Kauffman Group Inc., The                                                | 62     |
| Kraft General Foods Corp.                                               | 22     |
| L.L. Bean                                                               | 22     |
| Lotus Development Corp.                                                 | 20, 50 |
| Luntz Research Cos.                                                     | 10     |
| Lycos Inc.                                                              | 20     |
| MacroView Communications Corp.                                          | 20     |
| Magnet Interactive Communications LLC                                   | 22     |
| Marriott International Inc.                                             | 22     |
| MicroAssist Inc.                                                        | 10     |
| Microsoft Corp.                                                         | 20, 62 |

|                                 |    |
|---------------------------------|----|
| Mitchell Madison Group          | 20 |
| N2K Inc.                        | 22 |
| NaviSite Inc.                   | 20 |
| Nets Inc.                       | 50 |
| New England Financial           | 22 |
| Oakley Inc.                     | 22 |
| OpenPort Technology Inc.        | 62 |
| Optus Software Inc.             | 62 |
| PanAmSat Corp.                  | 32 |
| Phoenix Technologies Ltd.       | 20 |
| PictureTel Corp.                | 62 |
| PlanetAll                       | 20 |
| Procter & Gamble                | 50 |
| PSINet Inc.                     | 62 |
| Quaker Oats Co.                 | 50 |
| RightFAX Inc.                   | 62 |
| Sociate                         | 20 |
| Softbank Corp.                  | 20 |
| Symantec Corp.                  | 20 |
| TRW Inc.                        | 22 |
| TVisions Inc.                   | 10 |
| United Technologies Corp.       | 50 |
| U5Web Corp.                     | 22 |
| Vantage One Communications Inc. | 22 |
| VideoServer Inc.                | 62 |
| Vignette Corp.                  | 62 |
| Virtual Vineyards               | 22 |
| Westinghouse                    | 50 |
| Whirlpool                       | 50 |
| Yahoo Inc.                      | 22 |
| Ziff-Davis Publishing           | 20 |

### Advertiser Index

\*Denotes Section 2 Advertisers

|                                |                   |
|--------------------------------|-------------------|
| 3Com Corp.                     | 51                |
| Amdahl Corp.                   | 25                |
| American Power Conversion      | 17*               |
| AMP Inc.                       | 5*                |
| Bluestone Inc.                 | 25*               |
| Candle Corp.                   | 22                |
| CAP Gemini America Inc.        | 41                |
| Centrax Corp.                  | 57*               |
| CIO Communications Inc.        | 42, 61*, 65*, 67* |
| Compaq Computer Corp.          | 16, 36, 60        |
| Computer Associates Intl. Inc. | C2*, 5, 13*       |
| Data General Corp.             | 23*               |
| Datalink                       | 59*               |
| Dell Computer Corp.            | 1                 |
| Dow Jones & Co.                | 7*, 53*           |
| EDS Corp.                      | 3*                |
| EMC Corp.                      | 40*               |
| Exabyte Corp.                  | 9*                |
| FileNet Corp.                  | 11*               |
| Gateway 2000                   | 8                 |
| Hewlett-Packard Co.            | 67                |
| IBM Corp.                      | C4*, 14*, 33      |
| ICE                            | 69*               |
| IDG.net                        | 63*               |
| Intellispan                    | 21                |
| Kingston Technology            | C4                |
| Lexmark Corp.                  | 27*               |
| Lockheed Martin Corp.          | 59                |
| LoralOrion                     | 29*               |
| Lucent Technologies            | 15, 55, 69        |
| Mercury Interactive            | 55*               |
| MKS Inc.                       | 37*               |
| Netscape Communications        | 11                |
| Open Market Inc.               | 47*               |
| Oracle Corp.                   | 7                 |
| Pinnacle Decision Systems      | 29                |
| Platinum Technology Inc.       | 34*               |
| SAS Institute Inc.             | 19                |
| Segue Software                 | 33*               |
| TBI                            | C3*               |
| TRUE Software                  | 49*               |
| Unisys Corp.                   | 13                |
| UUNET                          | 19*               |
| VisionTek                      | C2 Flap*, 27      |
| Xerox Corp.                    | C3                |

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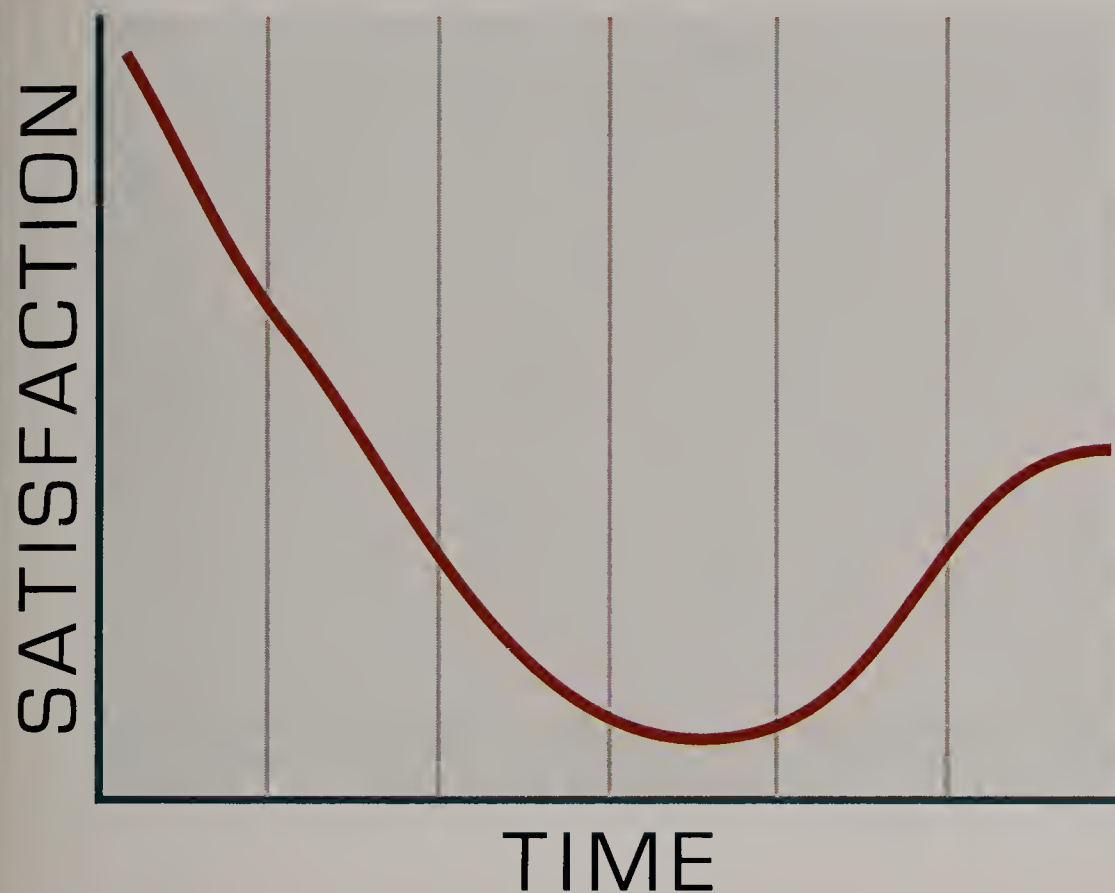
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